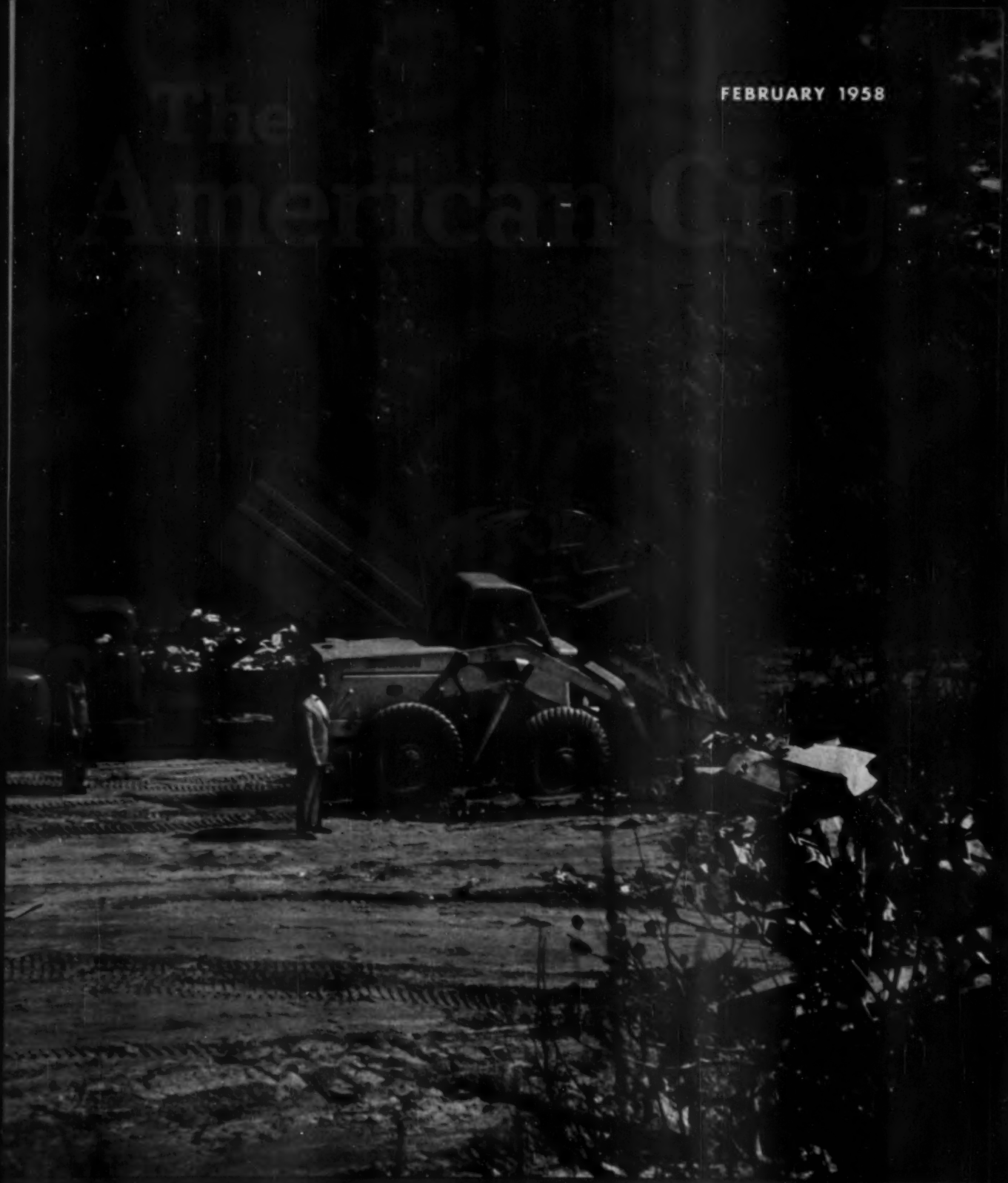
FEBRUARY 1958

The American City



City Manager John Kennaugh of Burbank, Calif., tells about the City's sanitary landfill operation. It is different from other sites in that a rubber-tired front end loader handles all disposal operations.

See story page 103

The paving problem: *Serious street settlement*

The solution: *A 14-in. Texaco Asphalt overlay*

Plankinton Avenue, important Milwaukee business thoroughfare, after completion of new 14-inch plant-mixed Texaco Asphalt pavement.

CONTRACTOR—*Schneider-Borchert Construction Company, Milwaukee, Wisc.*

Plankinton Avenue in Milwaukee and its surrounding area have been sinking as much as two inches a year, due to poor subsoil stability. To bring the 25 year old pavement on this thoroughfare up to grade called for the addition of as much as 14 inches of new paving.

Under such conditions, the flexibility of heavy-duty, plant-mixed Texaco Asphalt paving becomes doubly important. First, a coarse graded Texaco Asphaltic Concrete foundation (back base) was constructed on Plankinton Avenue in 3-inch layers, varying in total thickness up to 11 inches. This was followed by a 1½-inch binder course of finer graded Texaco Asphaltic Concrete, topped by a 1½-inch wearing surface of smooth, durable Texaco Sheet Asphalt.

Thanks to the speed with which the various courses of Plankinton Avenue's new Texaco Asphalt pavement were laid and compacted, merchants along the street, as well as traffic, experienced a minimum of inconvenience.

Whatever your own paving problem—whether it involves a street, highway, airport or parking area—there is a heavy-duty, intermediate or low-cost type of Texaco Asphalt construction exactly suited to your requirements. Helpful information on methods and materials recommended for all of these asphalt types is supplied in two free Texaco booklets. Copies may be obtained without obligation by writing our nearest office.

The 11-inch Texaco Asphaltic Concrete base was constructed in layers, each with maximum thickness of 3 inches.

Around raised manholes and other utility outlets, the Texaco Asphalt paving mix had to be hand raked.

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TEXACO ASPHALT

FEBRUARY 1958

The American City

A Buttenheim Publication

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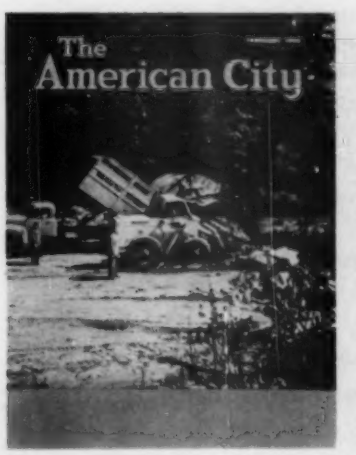

Cover Photo

A small city's need for versatile equipment led Buchanan Mich., to purchase a rubber-tired front-end loader to handle sanitary landfill operations as well as earth moving, street repair and maintenance, and similar jobs. One year's operation proved their selection to be a wise one. Personnel in the cover photograph include City Manager John Kennaugh; Eugene Winkles, truck driver; Cleatus Green, loader operator and Pete Grimes, laborer. Mr. Kennaugh's report on the first year's operation begins on page 152.

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Recruiting Telephone Ideas for the Future

What will the telephone of the future be like? Key members of CPPD discuss some possible models. Will they work? Are they marketable? Will they stand up?

Bell System's new Customer Products Planning Division has the fascinating job of generating, screening and testing new ideas for ever-better telephone equipment and service.

Here in this quiet room is shaped an important part of the future of the telephone.

For here are gathered together from many sources the hundreds of new engineering and styling ideas . . . even the "screwball notions" . . . from which the telephone of tomorrow will be developed.

Which are good? Which are bad? It is the responsibility of the Customer Products Planning Division to find out. And to select for development and production those items that people really want.

No idea seems too farfetched for careful consideration by this hard-headed but hopeful group.

They go on the premise that even a poor idea may spark a good one, and that you never know how good an idea is until you try it.

So, when an idea looks promising, working models are developed and designed by the Bell Telephone Laboratories, built by Western Electric Company, and tried out in homes or offices. Thus no bets are missed, and no costly mistakes are made.

This is just one reason for the success of Bell System's continuing program of research for ever-better telephone service.

Working together to bring people together

Bell Telephone System

Look at

Guest Editorial—By Mayor D. J. Connolly, Trenton, N. J.

The Commission Form "Replace it if You Can"

FREQUENTLY people ask about possible ways of strengthening the commission form of government. I am not at all convinced that commission government is worth keeping—much less strengthening.

It fosters divided authority and blurs lines of responsibility. It encourages buck-passing, engenders delay, and condones carelessness. It confuses the governed and compounds wastefulness. Commission government simply can't satisfy the needs of municipalities in the face of today's complexities. It is a model T car in a satellite-shadowed era. However, a lot of us are still driving it, so we might as well try to soup up the motor.

I have two proposals. The first may seem frivolous. But if you consider it carefully, you will recognize its value.

First, change the names of the departments to define their function more fully. Take the title, "Public Affairs," for example. What does it mean? Everything that the city does is a public affair. Consider also "Public Works." What division should it encompass and what, specifically does it actually mean? Also consider the Department of Finance. Is there any logic making the city's Legal affairs one of its division? Well, that's what we do in Trenton. In other Commission-type cities you might find legal work in Public Affairs or in Public Safety. Yet most state laws say that the commission "shall assign to each department the powers and duties having the greatest relevancy to the subject matters designated in the name of each."

If we overhaul the nomenclature of commission government, we should develop a more uniform, more modern, and more efficient distribution of powers.

The second suggestion concerns a problem all cities face—Housing. We must stop the spread of blight. We must eradicate our slums. We can check the spread of blight by vigorous, coordinated, code enforcement. But no matter how you organize and under what names, it is

(*Continued on page 7*)

THE AMERICAN CITY

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(*Continued from page 5*)

Look at
Highland Park's No. 977...

BUSY AT BOTH ENDS!

The sanitary landfill area in the Borough of Highland Park, N. J., covers about 20 acres and a lot of it is shale. It used to take air hammers to loosen the shale for trenching. This meant time and extra money. Today a Caterpillar No. 977 Traxcavator* simply pulls a CAT* No. 6 Ripper through the shale, making it possible for the Traxcavator to build the trench quickly and inexpensively. Then the No. 977 dumps and compacts the garbage in the trench. On this job the No. 977 is replacing a tractor and at last reports was handling what was formerly eight hours' work in one.

The No. 977 is one of three Cat-built Traxcavators with bucket capacities from 1 to 2¼ cu. yd. You saw how versatile the Traxcavator is with a ripper attached, but only an actual demonstration on your own project can show you the amazing versatility of this machine. Ask your Caterpillar Dealer especially about the brand-new side dump bucket which only the Traxcavator offers. Note this, too: all Traxcavator models are available with a heavy-duty undercarriage for those tougher jobs that put extra strain on your equipment. But get the whole story firsthand right now. A Traxcavator can save you tax dollars—pick up your phone, call your Caterpillar Dealer and find out how.

Caterpillar Tractor Co., Peoria, Illinois, U.S.A.

CATERPILLAR*

*Caterpillar, Cat and Traxcavator are Registered Trademarks of Caterpillar Tractor Co.

YOUR TAXPAYERS GET THEIR MONEY'S WORTH WITH CAT-BUILT MACHINES

(Continued from page 5)

Editorial

inevitable that the enforcement functions will be divided among several departments. It is impossible to make one commission responsible for sanitation, health, plumbing, zoning, building, streets, fire, and police.

Consequently it is imperative that these areas have a central direction and unified procedures in a given program. I urge that the Board of Commissioners be empowered to assign to the mayor the necessary personnel, authority, and responsibility to coordinate the activities of any interdepartmental group working on a specialized city-wide program such as this.

At present, personnel left in such a project are subject to orders from both the official of the new program and the director to whom they are regularly assigned. The mayor, with the commission's approval, could, as coordinator, eliminate this dual allegiance and thereby insure the cooperation for efficiency demanded by the job.

These measures would help strengthen a model T type of government operating in an interplanetary age. Of course, strengthen commission government if you must. Replace it if you can.

EDITOR'S NOTE: The Commission form of government, adequate in early days when municipalities were expected to provide only simple, easily performed services, has bcome increasingly inadequate today. Under it, the voters choose a mayor and commissioners, usually at salaries which make full-time service to the municipality a great sacrifice. Each is responsible for the administration of a separate department. Because the mayor has very little more authority than the commissioners, coordination is difficult. The mayor-and-council form does provide for a real chief executive, and the plan works better than the commission form if the voters have chosen the mayor wisely. The most effective form of all for the most cities is the council-manager plan. Here the voters choose a council, which in turn employs a professional administrator as city or village manager. This is the fastest-gaining form of local government in the United States today.

Mail Bag

Champion Cities

May I commend your editorial ("Champion Cities," December 1957, p. 5), particularly in stressing the need for giving importance to those attitudes and services which are accepted like bread and potatoes at meal time. They are so commonplace that we pay little attention to them, but if you take them out of our diet they would be roundly missed.

By the same token, there would be no city unless there was executive management and housekeeping functions done and well done.

The interesting article in *Fortune*, naming Cincinnati the best administered of the nation's large cities certainly favored the strong-mayor form over the council-manager plan. The growing number of cities using this plan can gain encouragement by the inadvertent compliment paid to it by *Fortune*.

Fortune also pays a long overdue compliment to the high caliber of elected officials that the nation's cities enjoy today.

C. A. HARRELL
City Manager
Cincinnati, Ohio

Mooresville's Main Street

The December issue of THE AMERICAN CITY Magazine carried an excellent article titled, "Main Street Metamorphosis Mooresville Style." We would like to suggest since there is a national interest by cities large and small in the problem so thoroughly covered in this article, that THE AMERICAN CITY consider the possibility of running this article as a separate printing and make it available in quantity numbers to those persons interested. In our work we find it would be a tremendous value to have stories such as this which can be given local circulation, and many times they serve to convince people much better than simply talking about what we should do or what people are doing elsewhere.

R. L. RATHFON
Planning Director
City Planning Commission
Sacramento, Calif.

Editor's Note: Extra copies of this and other articles generally can be obtained on request. Reprint privileges always are cheerfully granted.

Ditching Speed Record Challenged

Presumably, your little story, "A Speed Record for Ditching" (December 1957, p 11) is a suitable challenge to others to show faster figures. We regularly beat this record all hollow. Frankly, the performance cited is nothing of a record; it is not even especially creditable performance.

First, the whole application violates a prime requirement for efficient digging, i.e., "don't dig a ditch wider than necessary." A 20-inch trench is not at all necessary for a 4-inch pipe; a trench half that width would be quite sufficient. Therefore twice as much ditch was dug as was needed, and we may assume twice the cost was involved.

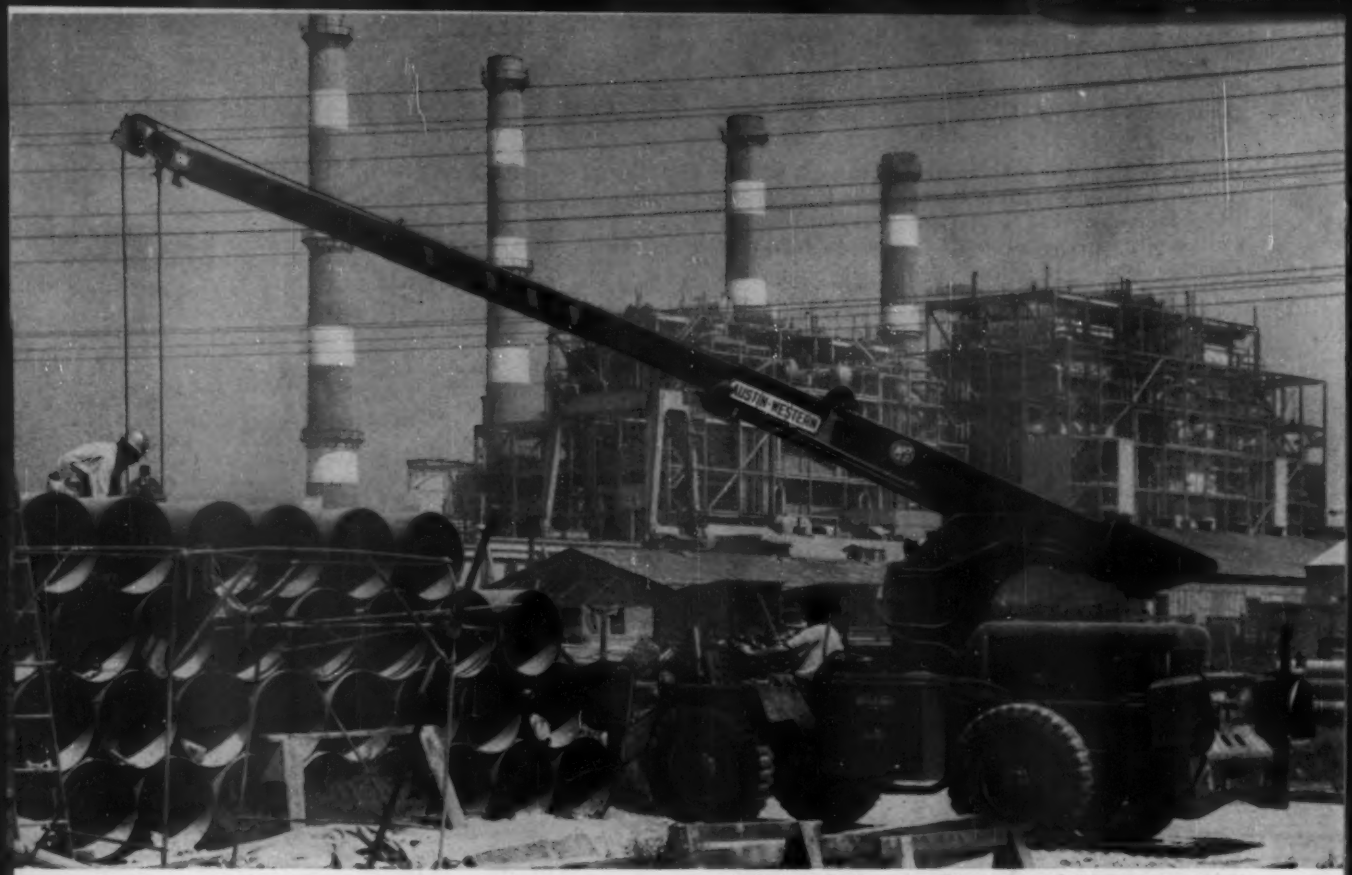
Then, as to speed. One man, with proper equipment could easily do this same job in an hour-and-one-quarter, not three hours. Let's look at it this way:

Being generous, allowing two hours for digging and one hour for backfilling, the backhoe obviously could not have dug at more than 4 feet per minute. In clay and gravel, a respectable mechanical ditcher could dig a trench of adequate dimensions at a rate of at *least* 8 feet per minute, possibly at 10 feet per minute.

Under the subhead "alternate procedures," your writer ignores the mechanical ditcher completely. Machines of this type, being designed exclusively for ditching work are, I am sure you will agree, a logical consideration for such a job. It's like the old carpenter's maxim . . . "There's one good tool to use for a hammer . . . a hammer."

As far as backfilling is concerned, our Model 705-B "Runabout" is equipped with a hydraulically controlled backfilling blade and I'd be willing to bet any amount of money in my possession that a 705-B could backfill a 480-foot trench in not more than 15 minutes.

R. W. RICHARDSON
Publicity Assistant
Barber-Greene Co.
Aurora, Ill.



A-W Hydraulic Crane handling sections of pipe near power plant.

Austin-Western hydraulic crane handles many jobs more economically, swiftly and safely

at Dept. of Water and Power, City of Los Angeles

Here's what they say about it!

Extremely versatile. "The maneuverability of the A-W unit with its 4-wheel steer is an advantage in setting steel footings for the legs of the power line towers. This unit can certainly get around.

"The A-W crane handles bearing caps on large condensers where the men formerly used chain falls. The speed, labor saving, and greater safety of this new crane increase the demand for it in this service.

"One of the first jobs for which the A-W was requisitioned was at the Seal Beach Steam Plant where, equipped with a bucket, it hoisted the sea life at the ocean end of the intake tunnel 22 feet into dump trucks. This was a three weeks' job.

"... It is easy for the A-W unit to raise a transformer weighing from one to three tons and place it on racks 18 ft. off the ground. . . . It is ideal for loading reels of wire in 2-wheel wire dollies. . . . The hooks on the A-W enable it to pull one of these dollies. . . . For excavating or pouring concrete, a small stock bucket is used. Convenient slings make it easy to carry steel plates.

Easy and safe to operate. "There is no hesitation in assigning any of the pool operators to do a job with it. . . . Safety is paramount, because it works around high tension lines or on such exacting operations as picking up a pipe and holding it in place for welding."

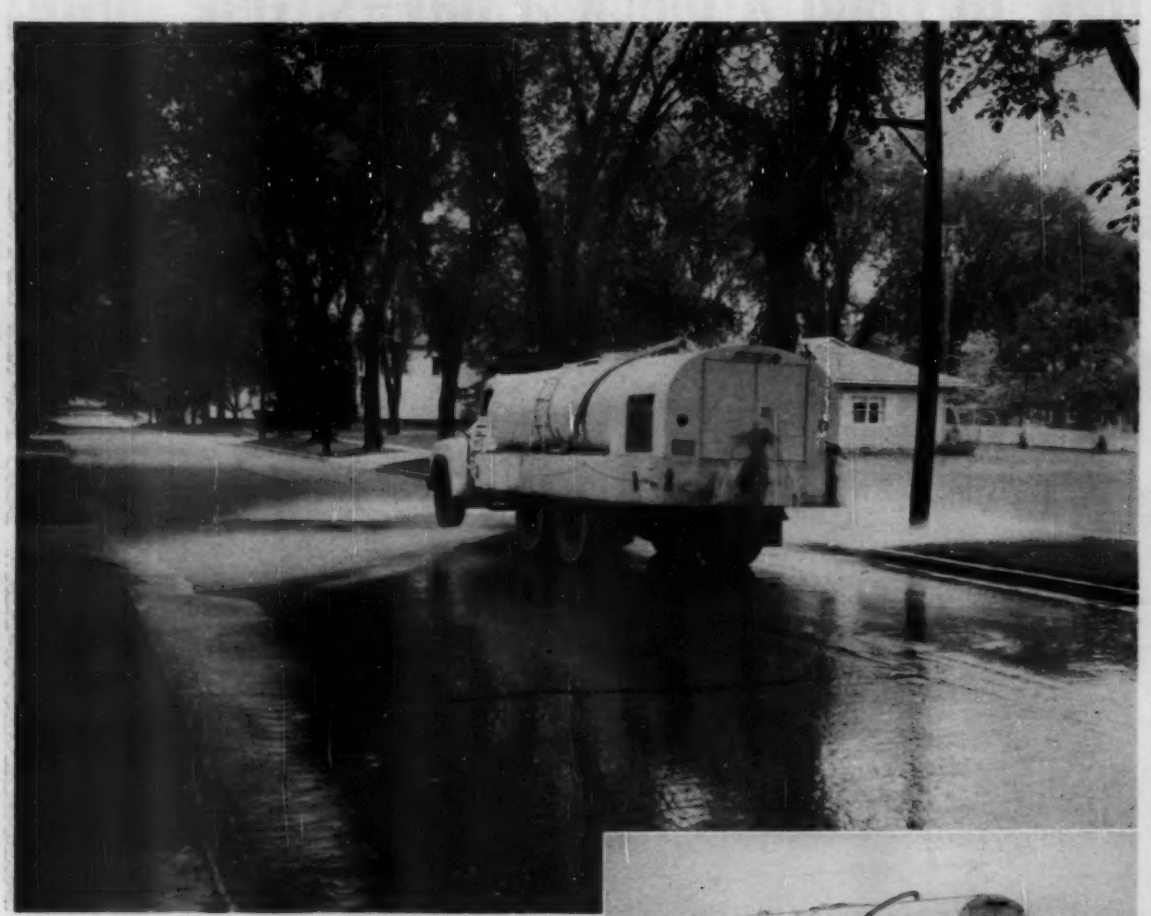
For the complete Dept. of Water and Power, City of Los Angeles, story, write for Gould Report 5604.

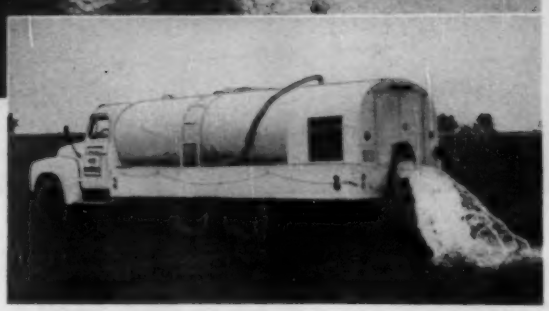
Austin-Western CONSTRUCTION EQUIPMENT DIVISION, AURORA, ILL.

BALDWIN · LIMA · HAMILTON

Power graders • Motor sweepers • Road rollers • Hydraulic cranes

BALDWIN BLH LIMA-HAMILTON





The flusher washes down city streets in Woodstock, Ill., on a once-a-week basis. The same unit (right) hauls lime sludge from the city-owned water-softening plant to nearby farms.

Flusher Doubles as Lime Spreader for Farmers

WOODSTOCK, Ill., is winning the friendship of its farmer neighbors by using a city-owned flusher truck to spread lime sludge free on nearby farms. At the same time it is saving money in the disposal of lime sludge from the water-softening plant.

The flusher, a Seaman-Gunnison of 2,000-gallon capacity, is used twice weekly to flush the business district and once each week to flush all the city streets. Most of this work is accomplished by 9:00 a.m.

For the remainder of the day, it is used to spread lime sludge on nearby farms. The city had a problem with the disposal of lime sludge produced in the city-owned water softening plant. Lime is a good soil conditioner and in much demand by farmers.

The truck loads up with 2,000 gallons of the sludge and then proceeds to a nearby farm and distributes the load through a 6-inch nozzle mounted on the rear of the truck. It takes about 5 minutes to get rid of the contents. Peter A. Pakey, city manager, reports that the waiting list for the sludge is long.

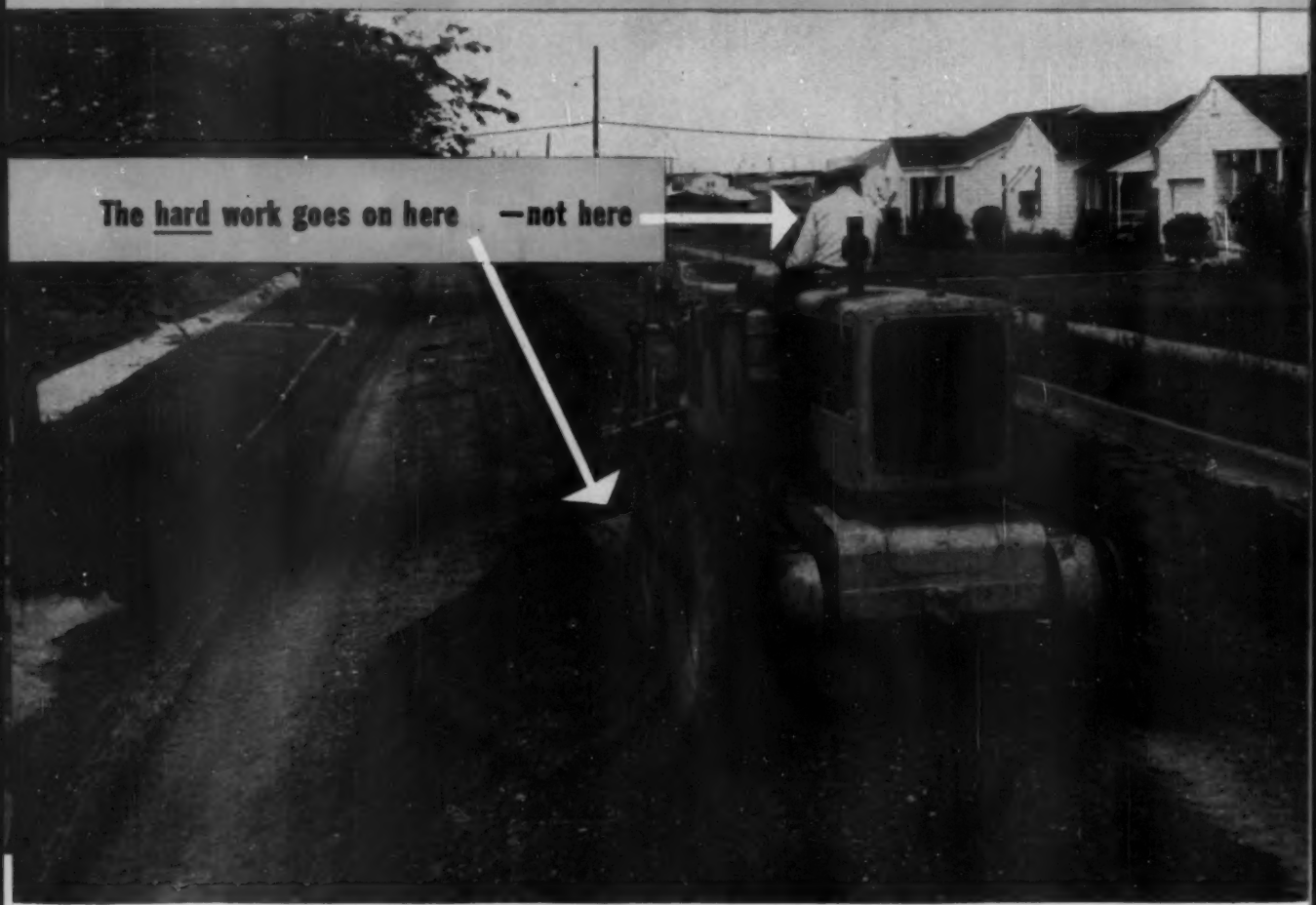
Summer Storms Boost Cleaning Costs

LAST summer Springfield, Ill., experienced three severe storms that cost the city an extra $32,210 for cleaning up the debris. The City Council, at a year's end meeting, appropriated this sum to various municipal departments.

Most of the money covered overtime work on the part of garbage, forestry and street department employees plus wages for extra crews recruited for the cleanup job. Total cost of the cleanup work came to $43,709.29, excluding costs of the City Water, Light and Power Department.

Commissioner George Oliver of the Department of Public Property roughly estimates that the total cost of the storms comes to approximately $100,000.

How to build a block a day—sitting down!



Rebuilding 16th Street between Ft. Worth Street and Dallas Street, Grand Prairie, Texas.

It's an old asphalt street, so first you scarify the old asphalt—with a CAT No. 112 Motor Grader.

Second, break the chunks with a sheepsfoot.

Third, mix with 4" of gravel—with the No. 112.

Fourth, level with the No. 112 and shoot a one-shot penetration of RC2 asphalt.

And that's that.

In Grand Prairie, Texas, they do it a block a day.

And you can work Cat Motor Graders sitting down. Just look at the operator on Grand Prairie's No. 112. Comfortable, in complete control of the job, no strain.

It's the low frame design of the No. 112, and its dashboard-mounted lift gears, that make the visibility so good, even when the operator is sitting. It's the precise mechanical controls that make blade positioning so accurate. And it's the curved side shift rack that makes a wide range of movements so easy. Scores of other Caterpillar engineering advances make these versatile yellow machines as much a bargain for your city as for Grand Prairie. Find out for yourself. Ask for an on-*your*-job demonstration, right now! Call your Caterpillar Dealer. Ask about making the hard work *easy*.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

CATERPILLAR

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YOUR TAX DOLLAR'S BEST BUY

Street Construction & Maintenance

Pamphlet Explains Assessment Improvements Procedure

CITY MANAGER Peter F. Roan and other officials of Iowa City, Iowa, believe that a well-informed citizenry is the key to a more active public improvement program. An illustrated brochure recently mailed to some 7,000 homes in Iowa City sets forth the seven basic steps to special assessment improvements. These improvements include permanent residential street pavements, sidewalks, and sanitary sewers.

The booklet outlines the actual steps necessary to secure paving in front of any individual's home, and states that the same procedures are applicable to the other types of special assessments with minor variations. It also outlines the method of assessing costs, what portion of the work is paid for by the city, and the interest rate and installment plans available for such work.

As an added convenience, each pamphlet contains a self-addressed postal card. Any property owner interested in street paving, sidewalk or sanitary sewer construction in his neighborhood could obtain the information merely by filling out the card and mailing it.

Donations Help City Acquire Bypass Route

A SERIES of unusual events resulted in the construction of an 80-foot wide, 1¼-mile long thoroughfare between the central portion of Cheyenne, Wyo., and the fast-growing suburbs to the southeast of the city. The people living in the suburbs wanted such a road, and so did A. W. Trout, Sr., Cheyenne's veteran Commissioner of Streets and Public Improvements. He knew that savings to the city in trucking expense between the city's gravel pit to the southeast and the north and east portions of greater Cheyenne would pay for the project in a very short period of time.

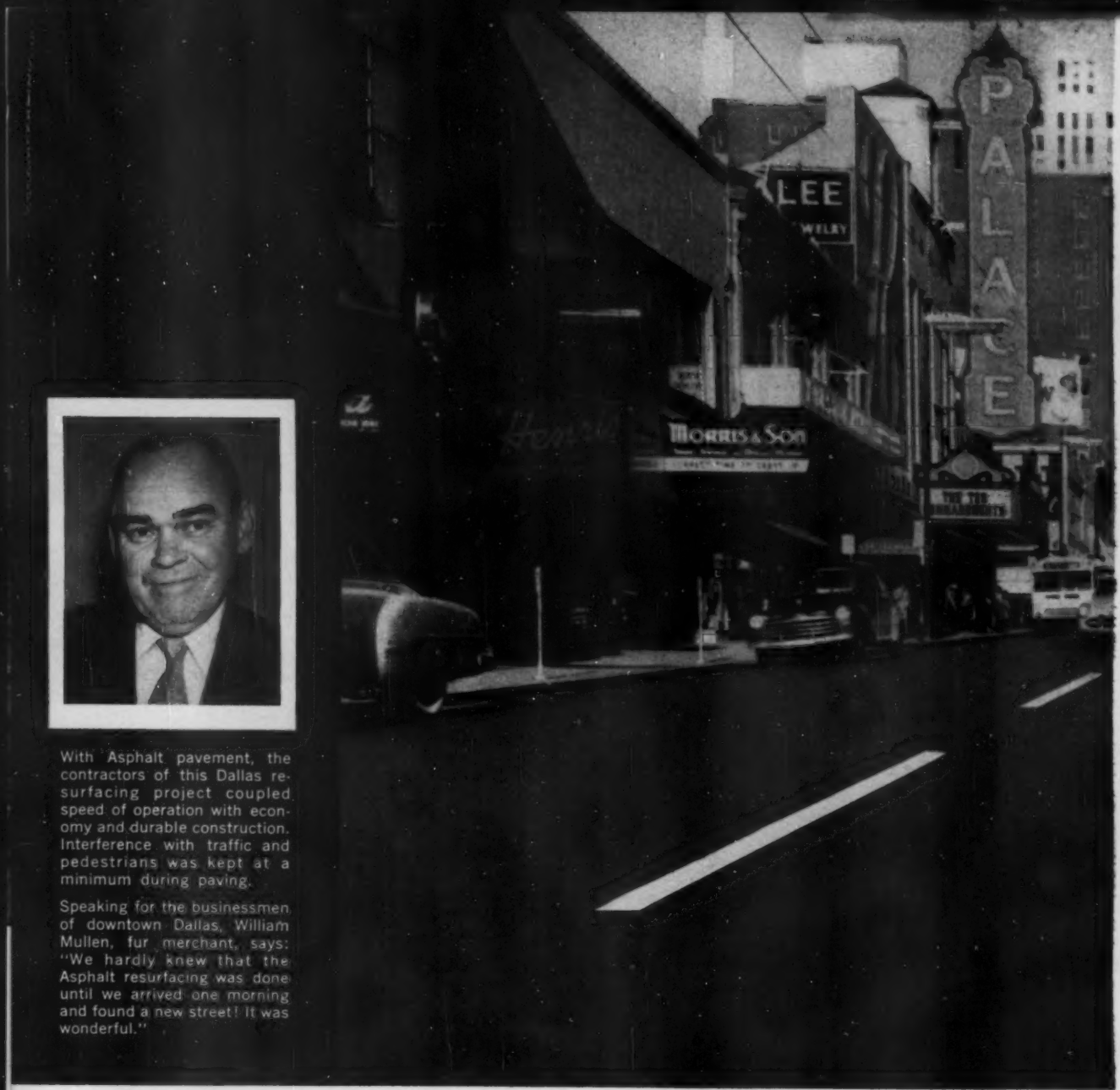
But the city had no funds to acquire a right-of-way, and to make matters worse, the greater portion of the proposed route lay outside the city limits. News that the federal highway route was to run across the same area further complicated matters, for this would require an overpass, and there was little possibility that either city or county could finance such a structure.

However, Commissioner Trout, believing that "where there's a will, there's a way," took his problem to the people directly involved, and they came up with the answer. In less than a week the needed right-of-way had been donated, and two private construction companies with gravel pits in the area donated labor and equipment to construct that portion of the road lying outside the city limits. The city used its own crews and equipment to build the portion of the road lying within the city limits.

Equipment used to accomplish the job with amazing rapidity included a Northwest dragline, six Caterpillar tractor scrapers and two Caterpillar motor graders. Concrete tile seconds made up the culverts that carry the waters of Crow Creek under the roadway.

The new road, in daily use, is not quite complete. Commissioner Trout is now looking for an economical way to replace the temporary culvert with a suitable bridge, and no doubt will have the answer soon.

This is a view of Cheyenne's new short cut to the southeast suburbs. The building of this short cut was made possible chiefly by donations of land, labor, and material. City forces employed their own equipment in doing the balance of the work.



With Asphalt pavement, the contractors of this Dallas resurfacing project coupled speed of operation with economy and durable construction. Interference with traffic and pedestrians was kept at a minimum during paving.

Speaking for the businessmen of downtown Dallas, William Mullen, fur merchant, says: "We hardly knew that the Asphalt resurfacing was done until we arrived one morning and found a new street! It was wonderful."

Downtown Dallas dramatically demonstrates

"Almost overnight" the *miracle* happened!

One day the streets of downtown Dallas were a hodge-podge of various types of surfaces. Including some hazardous spots where unused trolley tracks still remained.

Then . . . in about 35 "working *nights*" . . . the same streets were transformed into smooth, handsome, safe-driving Asphalt thoroughfares. Praised alike by merchants and their customers. By office building superintendents and their tenants. By city officials . . . engineers . . . contractors . . . taxpaying motorists.

The cost of this Asphalt resurfacing program was so moderate it could be financed from savings in the city's general operating fund. And, says Dallas' City Paving Design Engineer, Robert S. Cullum, "The job was the smoothest operation in my memory."

Modern, smooth-driving Asphalt pavement will also give *your* community the most pavement for the

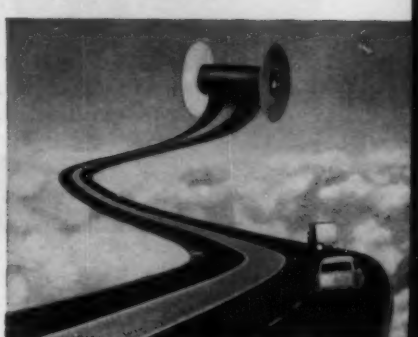
How a Four-Man Crew

the speed and savings of ASPHALT paving

money! And it has so many *advantages.*

Resilient, rugged, skid-resistant. Withstands the heaviest traffic. Absorbs glare. Seals out moisture. Isn't affected by de-icing salts. Quickest, easiest and most economical surfacing to restore after utility tear-ups.

Write for the new manual: "Thickness Design of Flexible Pavements for Streets and Highways."



Ribbons of velvet smoothness . . .
MODERN **ASPHALT** HIGHWAYS

THE ASPHALT INSTITUTE, *Asphalt Institute Building, College Park, Maryland*

How a Four-Man Crew laid 1500 feet a day of CLOW Bell-Tite® pipe through Florida swampland

CLOW cast iron pipe, with the sensational Bell-Tite joint, proved its advantages conclusively in this Clearwater, Florida, installation.

That a four-man crew was able to lay this CLOW Bell-Tite pipe at 1500 feet a day under these adverse conditions is definite evidence of the time, labor and money-saving advantages of this CLOW-designed joint. Two men worked in the trench—often in 3 feet of water. One man lubricating and aligning the joints, the other assembling with a pinch bar. A crane operator and a hook-up man completed the crew.

CLOW Bell-Tite forms a pressure-tight joint—instantly—no bolts or follower glands required. Under practically all conditions, it is the fastest, easiest and most economical pipe for water main installation. Underwriters' Laboratories Inc. listed in diameters 3- through 24-inch.

Shows simple assembly of CLOW Bell-Tite joint. Just wipe clean, lubricate and push spigot into the bell. When painted yellow stripe is no longer visible, joint is bottle tight.

Under-water assembly of 8" Bell-Tite pipe at Clearwater, Fla.
Contractor: Hancock Pipe Company, Clearwater, Fla.

JAMES B. CLOW & SONS, Inc.

CLOW 1878 ®

Subsidiaries:
Eddy Valve Company, Waterford, New York
Iowa Valve Company, Oskaloosa, Iowa

THE ASPHALT INSTITUTE, Asphalt Institute Building, College Park, Maryland

Ribbons of velvet smoothness . . .
MODERN ASPHALT HIGHWAYS

Sewerage & Sewage Purification

Vacuum Filters' Service Life Increased Twentyfold with Saran Cloth

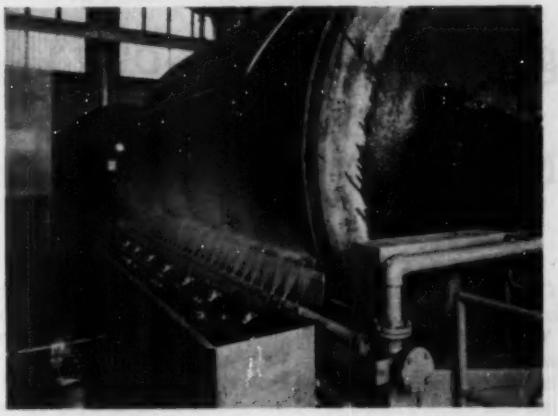
VACUUM filters operate much more effectively in the Minneapolis-St. Paul sewage-treatment plant when they are equipped with a plastic cloth instead of the usual Canton flannel.

This plant has been using 32 x 32 mesh Saran cloth screen woven from 10-mil monfilament Saran plastic yarn. This provides a relatively porous filter media compared with the 8-ounce Canton flannel filter cloth previously used, and eliminates most of the "blinding" difficulties which had been increasingly troublesome in the past.

As a result, with this plastic cloth, the District has been able to reduce the amount of chemicals required to coagulate the sludge prior to filtration, and to lessen the number of times the filter media must be washed and acid cleaned.

The filtrate which is returned to the settling tanks is considerably higher in suspended solids content when the Saran cloth is used, but this does little to impair the final plant effluent. The average service life of the four Saran cloths replaced during 1956 was 8,747 hours, compared with only 433 hours for the flannel. The maximum service life for a Saran cloth was 15,367 hours at the close of 1956.

The Oliver vacuum filters receive undigested sludge, pumped from a concentration tank, having an average solids content of 7.60%. The dewatered sludge is destroyed in a Nichols multiple-hearth incinerator. The sludge entering the incinerator has a solids content of 27%. Seventy per cent of this material is combustible.



At the Minneapolis-St. Paul sewage treatment plant, the longevity of the Oliver vacuum filters is increased by plastic cloth.

The plant currently has a project under way to utilize waste carbide lime slurry to coagulate the sludge, instead of pebble lime. The carbide lime slurry appears to be equally effective as quicklime and easier to handle and feed.

Central Garbage Grinding Produces a Profit

RICHMOND, Ind., grinds its garbage in a central plant and produces enough equivalent income to pay for the grinding equipment and other appurtenances in five years, according to Wm. Edwin Ross, superintendent of sewage treatment and sanitary distribution.

In 1948, the city increased the capacity of the plant from 6,000,000 gallons daily to 11,000,000 gallons, and included garbage grinding equipment in the enlarged plant. The total cost of the expansion program was $870,000; of this, $101,750 was chargeable to garbage grinding and disposal. This could be broken down as follows:

Added digester capacity	$71,800
Garbage handling equipment	20,700
Engineering and legal fees	9,250

The garbage handling equipment included the conveyor, grinder, scales and ventilating fans. The total cost thus amounted to $1.70 per person served, based on a design population of 60,000.

The gas produced from the combined treatment of sewage sludge from the standard activated-sludge type of treatment amounts to more than 100,000 cubic feet per day. The average amount used is 88,500 cubic feet daily.

The total amount of gas used in the plant last year was 32,266,000 cubic feet. At a value of 65 cents per 1,000 cubic feet, based on the value of natural gas in Richmond, this means a savings of $20,973 for the year, or more than one-fifth of the capitalized cost that Richmond ordinarily deems chargeable to grinding.

In 1952, the cubic feet of gas per pound of volatile solids added to the digester equaled 10.4, while in 1952 the figure was 8.2. From 1952 to 1956 the amount of garbage received increased from 1.0 to 2.0 tons per million gallons of sewage. Garbage now runs about 0.43 pounds per capita per day.

The Richmond plant introduces the garbage directly into the digesters. The garbage is first weighed on a truck scale and dumped onto a metal conveyor. The hopper feeding the conveyor will hold three truck loads of garbage, thus permitting the three trucks to operate a full day even if the grinder should be down for repairs for several hours.

The conveyor permits pickers to remove metal objects before the garbage passes into the garbage grinder. From the grinder, the garbage passes into a JiGrit washer to remove any grit. It is then pumped into one of the two 95-foot digesters. The conveyor, grinder and grit-removal equipment are Jeffrey units.

The grinder has missed only one day of operation since it was put to work in 1951; and this one day of work outage was caused by a piece of cast iron that entered with the garbage, breaking some of the cutter bars. One operator does the grinding and normal maintenance work; knives have to be changed about every three months.

The gas generated in the digesters is used to heat all plant buildings, to supply power for blowers and to operate the sludge pumps.

A complete description of the enlargement program was published in THE AMERICAN CITY, September 1952.

"... no one could go wrong in buying a Nordberg engine ..."

says Mr. Walter Scales
Manager
Conway Corporation
Conway, Arkansas

The Conway Light, Power and Water System is owned by the City of Conway, Arkansas, and operated by the Conway Corporation. Mr. Walter Scales, its manager, has this to say about Nordberg power:

"Our first Nordberg engine was installed late in 1951. That engine now has over 36,000 hours of running time on it. During the calendar years 1952 thru 1956 the engine was on the line 75% of the possible running time. During one period of 43 consecutive months the engine was operated over 90% of the possible running time and accounted for 75% of our total plant generation during that period.

"Our second Nordberg went into operation in 1956 and now has over 8,000 hours on it. There is every indication that it will be as satisfactory, and even more economical, than the first engine. Our opinion is that no one could go wrong in buying a Nordberg engine."

When you need *long-term, dependable* power, consult Nordberg . . . builders of a full line of engine sizes from 600 to over 12,000 hp, including Diesel, Duafuel® and Spark-Ignition Gas types.
NORDBERG MFG. CO., Milwaukee, Wisconsin

Installation Data:

City of Conway, Arkansas:

Two Nordberg 2-cycle Duafuel® engines installed, total of 6225 hp.

- First engine installed late 1951 . . . rated 2750 hp, 1940 kw.
- Second engine installed late 1955 . . . rated 3475 hp, 2470 kw.

NORDBERG

DIESEL • DUAFUEL® AND SPARK-IGNITION GAS ENGINES

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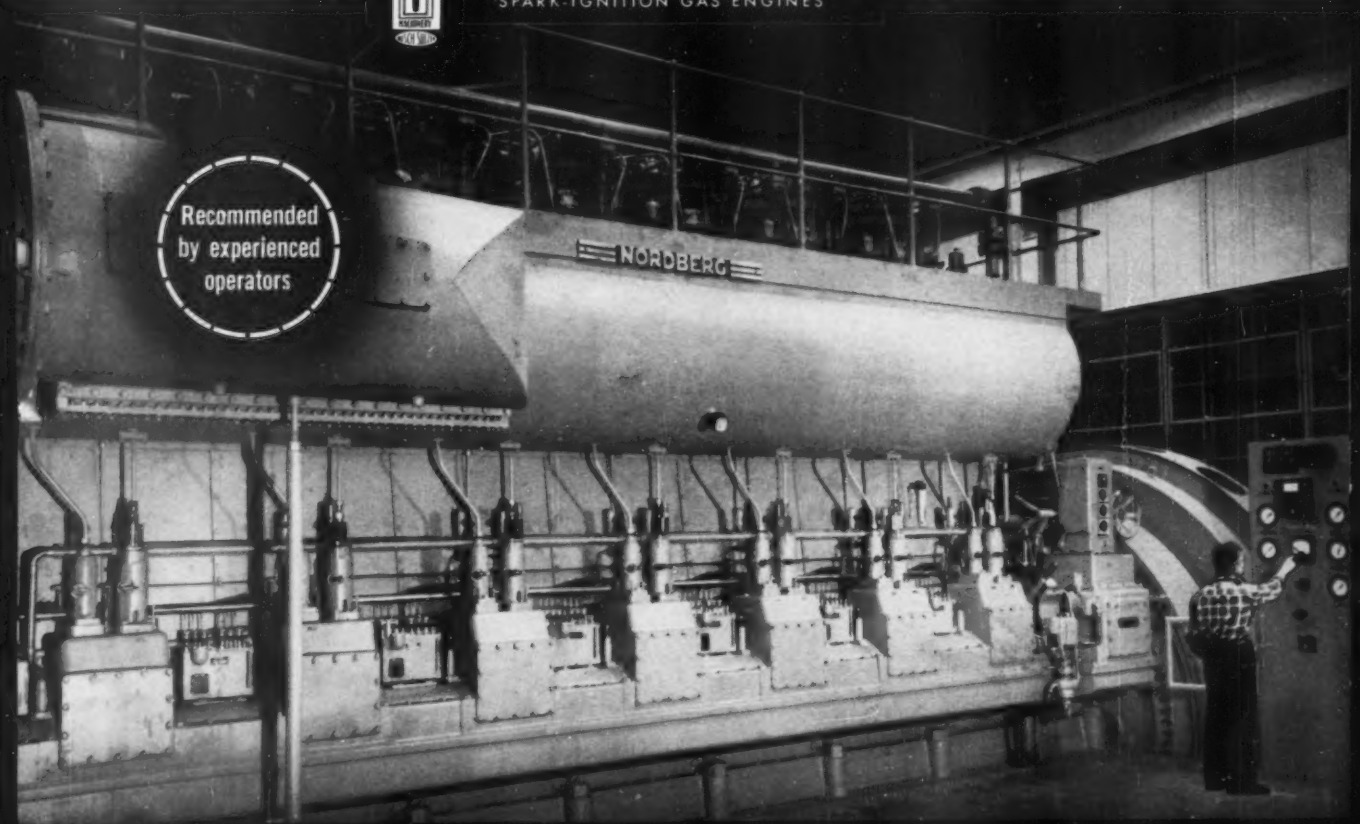

Some Refuse Collection Efficiency Notes

AT Atlanta, Ga., Stafford W. Graydon, Sanitary Engineer, has found that conscientious refuse collection crews will perform their duties at the following rates and will work best under these conditions of employment:

- One crew, consisting of a driver and four laborers, can service an average of 1,400 residences; this will vary from a low of 400 in large estates to a high of 2,800 in thickly populated districts. The crews could do better if the containers were on the curbs.
- Crews using city-owned tubs to convey garbage from the can to the truck require about half as much time as crews that must haul the can to the truck and return it.
- Crews gain efficiency by using large, compactor-type trucks, with a minimum size of 20 cubic yards.
- Employee morale remains high when the city recognizes outstanding service by letter; when employees are encouraged to make suggestions; when they are promoted on the basis of merit; and when they take part in group meetings regularly so that each feels that he is important to the success of the department.
- Large refuse container removal by mechanical lifts are gradually coming into their own. Atlanta is using a 32-yard trailer to lessen the distance of "dead heading" Dempster Dumpster units to a disposal area.

Atlanta collects from all residential areas twice a week, and from business houses, six times a week, and occasionally seven. Crews collect from the rear of residences and from the curb in business areas. In the latter part of a typical week when collections are light, crews often are assigned street-cleaning and other duties.

A Sanitary Fill with a "Mission"

THE Mission Bay sanitary landfill, outside San Diego, Calif., is appropriately named. Missions generally are established to provide an uplifting influence in a depressed, decadent area, and generally have to do their work under difficulties. This aptly describes the case here.

Mission Bay is a large, shallow body of water northeast of San Diego. The southern end is a tidal flat that remains dry except at extremely high tides, and these occur only rarely. It has the great advantage of being close to the center of the city, thus convenient for refuse disposal. Its handicap is a tight, slippery muck that must be used for cover material. As a tidal flat, it is largely a loss to the city; as a completed sanitary fill, it will become a taxpaying benefit as an industrial site.

To use it as a sanitary fill, the city first cuts a trench about 50 feet wide and 12 feet below the waterline, piling the mud into a high windrow, where it can drain partially, and become somewhat more useful as a cover material. Trucks then dump their refuse into the ditch under the supervision of the dump foreman.

An Allis-Chalmers HD-21 diesel tractor then comes into play, pushing the trash into the trench, and compacting it. Each afternoon and several hours before quitting time, the tractor dozes the stockpiled mud over the day's fill to a depth of about 1 foot. The fill is carried about 6 feet higher than the original mud-flat level. Eventually, clean sand will be dredged in to complete the cover.

This project is part of an ambitious project aimed at transforming 4,500 acres of shallow water, tidal flats, and low-lying marginal lands into a fine boat harbor and aquatic recreational area. When completed, Mission Bay Park expects to be one of the nation's most attractive aquatic recreational areas.

San Diego's refuse is transforming Mission Bay into an aquatic park.

Our Municipal Notebook

President Eisenhower:

More State and Local and Less Federal Spending on Urban Services

IN their struggles to build and finance expanded facilities for water supply and sewage disposal; to eliminate rapidly spreading slums; and to provide public housing and public welfare aids for their burgeoning population, American cities and towns may expect less and less help from the federal government in the future. This radical shift in national policy was President Eisenhower's message to the nation's mayors and other municipal officials as he delivered to Congress last month his budget recommendations for the 1958-59 fiscal year. For in order to meet the demands of a budget that allocates 64% of federal spending to defense needs, President Eisenhower specifically made the following proposals:

1. to eliminate all new water supply, flood control, irrigation, and power projects under the jurisdiction of the Bureau of Reclamation and Corps of Engineers. (The 309 water resources projects that these agencies will have under way in 1958 will be allowed to continue in 1959.)
2. to end federal aid for the construction of waste treatment facilities and transfer this function to the legislatures of the 48 states.
3. to implement a five-point program that will result in a sharp increase in state and local spending for slum clearance and urban renewal and reduce federal spending for this function below the present fiscal year's budget.
4. to reduce federal participation in the financing of welfare aids to the aged dependent and disabled and shift a greater responsibility for this function to the state governments.
5. to make no further authorizations of public housing in the forthcoming fiscal year.

In addition, the President proposed that interest rates be upped in the big federal mortgage insurance and guarantee programs for the nation's home-building industry.

Among new programs that had been proposed as aids for urban areas but were cut out of the budget as delivered by the President were a $420,000,000 federal-aid school construction program and a $3,000,000 Children's Bureau program to combat juvenile delinquency in the country.

The President's proposals added up to a major reversal in national policy and were characterized by *The New York Times* as "the first federal retrenchment in the jointly financed 'welfare state' programs since the Roosevelt Administration set most of them in motion."

Recommends More State and Local Spending in Urban Renewal

Although all of the proposed budget and procedural changes are significant, perhaps the most far-reaching are the President's five recommendations for relieving the federal government of primary responsibility of the rapidly expanding urban renewal program. The five points are all aimed at placing more and more of the financial burden of renewal on the treasuries of municipal and state governments.

According to the President, urban renewal programs have reached the stage where "states and local communities" can "assume a share of the administrative responsibilities and financial costs more nearly commensurate with the benefits which their citizens receive."

Five Recommendations

The proposed five-point program for urban renewal is as follows:

1. In the future, urban renewal planning costs should be borne primarily by local communities. At present all initial planning costs are paid for by the federal government and when and if the renewal project is carried out, part of this cost is borne by the locality as its one-third share of the total project cost.
2. To permit the federal government ultimately to withdraw from the supervision and review of all urban renewal procedures, each state should establish a special agency for urban development, housing and metropolitan planning. This new state agency would also assume "as soon as possible" the financial responsibility for local planning of urban renewal projects.
3. Beginning in 1960 and in all later years "the states and localities should be required to provide an increasing share of the cost of buying and clearing the land and other net project costs "involved in urban renewal." This should be done in such a way "that by 1962 the federal government would contribute not more than 50% of the cost of local projects."
4. $200 million should be authorized for new urban renewal projects in fiscal year 1959. (This is in contrast to the $350 million authorized by Congress for fiscal year 1958.) The President indicated that the 1960 authorization should be $250 million with a federal renewal participation limited to payments of 60% of net project costs; in 1961, $250 million with participation at 55% and in 1962-64, $200 million annually with the federal share at 50% of net project costs in the program.
5. "Consideration should be given to authorizing the Urban Renewal Administration to help local public agencies finance nonresidential urban renewal which does not require federal capital grants by guaranteeing obligations issued to finance such projects." This would apply primarily to declining commercial and industrial areas where renewal will be so profitable that private financing should be obtainable without ultimate net cost to the federal government.

Other Recommendations Concerning Municipalities

Other Presidential proposals of special interest to municipal officials were:

1. a continuation of approximately the present level of spending for civil defense. (However, the President did note that a shelter program was undergoing study by his administration and he indicated further that he will later recommend major changes in organization and in the administration of the nation's civil defense responsibilities to be "vested in no one short of the President.")
2. provision of home rule powers for the District of Columbia which would also empower citizens of the District to elect local officials, vote in federal elections and have a delegate in the House of Representatives.
3. a request for a completion of congressional action on pending legislation admitting Hawaii and Alaska into the Union as states.

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New York 16, N. Y.

American City Magazine

The Municipal Index

Edgar J. Buttenheim
Chairman of the Board

December 19th, 1958

Mrs. Patricia Colling, Editor
University Microfilms, Inc.
313 N. First Street
Ann Arbor, Michigan

Dear Mrs. Colling:

Thank you for writing to us concerning pages 19 through 22 of the February issue of THE AMERICAN CITY Magazine which you have.

The copy you have is a complete issue and the error was in numbering as you thought it might be.

Please let us know anytime we can be of further service.

Yours very truly,

Gertrude E Bauer

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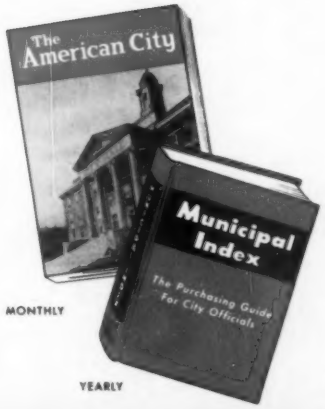

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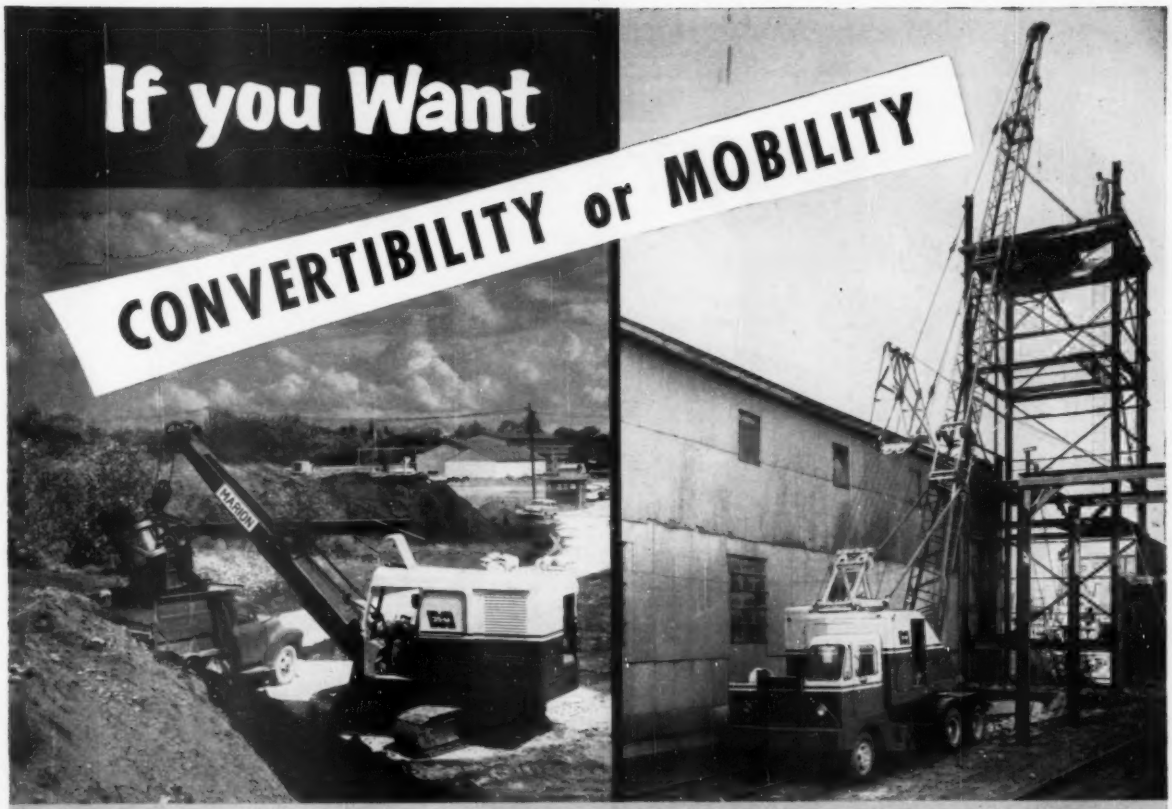

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LOCK JOINT ECONOMIES: *One of a Series*

It's a bargain!

If Peter Minuit were alive today probably nobody would be more surprised than he at the extent of the bargain he made with the Indians for Manhattan. His $24 investment now has an assessed valuation of more than $7,000,000,000.

But no one should be surprised at the value offered by LOCK JOINT CONCRETE PRESSURE PIPE. For a great many years the low first cost of this pipe has been assured by keen competitive bidding, its simplicity and speed of installation have helped to reduce construction costs, its record for dependable, trouble-free service has been unexcelled and its operational and maintenance costs have been minimal.

What more can you ask in the way of a bargain? Highest quality, low cost, best service, least maintenance — that's LOCK JOINT CONCRETE PRESSURE PIPE.

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University Leadership Brings Better Local Government in Pennsylvania

THE AFFAIRS of many a western Pennsylvania community are better managed today than ever before because of a cooperative effort with the Institute of Local Government (ILG), a service organization founded and operated by the University of Pittsburgh.

The Institute offers guidance on the problems facing officers in local government and sponsors courses for elected and appointed officials, most of whom are part-time nonprofessional men and women and many of whom lack training, staff, and research facilities.

The ILG makes available to these people a growing library of reference material on local government matters and, in addition to a regular library bulletin, publishes a newsletter which is distributed to nearly 2,000 officials of townships, boroughs and municipalities in western Pennsylvania.

It serves also a secretariat, handling much of the promotional and clerical detail for several associations of local government units and groups of local officers.

The Institute's personnel services division conducts civil service examinations in a number of governmental jurisdictions, including heavily populated Allegheny County.

Founded by the University in 1944 to fill an urgent need by government officials in western Pennsylvania communities, the Institute of Local Government took its place with the Institute of Local and State Government at the University of Pennsylvania and a similar program at Penn State University. The Pittsburgh organization, however, places primary emphasis on the in-service training of local government officials.

More than 3,500 persons took part in meetings, conferences and courses sponsored by the Institute during the past operating year. Some 40,000 pieces of mail were sent out, including copies of Institute publications. Requests by local officials for information were handled by the ILG staff at an average rate of three every working day in the year.

During the year the ILG conducted five short courses, which were attended by local officials representing seventy-one municipalities in five counties. A major conference on subdivision control attracted 70 delegates representing 43 municipalities, and a major information report prepared by the ILG staff covered compensation rates for employees of over 100 cities, boroughs and townships in western Pennsylvania.

The Institute staff also was busy preparing and revising bulletins on such subjects as municipal elections; financing sewage treatment facilities; regulating billboards; and differences between first- and second-class townships. The organization is active in the preparation of model ordinances, regulations and forms for local government units. Its *Model Council-Manager Ordinance for Pennsylvania Municipalities*, has been adopted by 35 communities in the state.

Alexandria Planners Get Special Renewal Job

IN Alexandria, Va., a recently developed urban renewal program gives the planning department in this city of 65,000 persons a special job. The planners are to coordinate the work of all city departments in rehabilitating run-down buildings through the enforcement of local building, zoning, housing and other municipal codes.

Thus the city council has divided the responsibility for Alexandria's urban renewal program between the planning department, which is to handle all rehabilitation aspects, and the city Redevelopment and Housing Authority, which is to handle all demolition or clearance projects.

Spending to Save

By SPENDING money today for special expert financial advice, Phoenix, Ariz., expects to save tomorrow's interest costs when the city sells its $2,600,000 airport revenue bonds. For the city has recently signed a contract with a firm of terminal and transportation consultants to determine, among other assignments, firm projections of future airport income. Specifically, the study for which a maximum fee of $13,500 has been set, calls for three determinations: (1) whether the airport revenues which can reasonably be expected to be available for debt service over the life of the proposed bonds will be adequate to cover the required debt service; (2) how a margin or added revenues can be developed which will give reasonable assurance of selling the issue at an effective interest cost of 5% or less, and (3) proposed remedial actions by the city during the course of the study to counteract any factors which might work to the disadvantage of the proposed bond sale.

The airport revenue bonds are to be sold to finance major improvements at the Phoenix Sky Harbor terminal. Included are additional land purchases, an expansion of the terminal building paving, and other facilities aimed at making the airport suitable for the jet age.

The firm engaged to study the economic feasibility of selling the airport bonds is James C. Buckley, Inc., terminal and transportation consultants of New York City.

Philadelphia Saves Industrial Sites with "Land Bank"

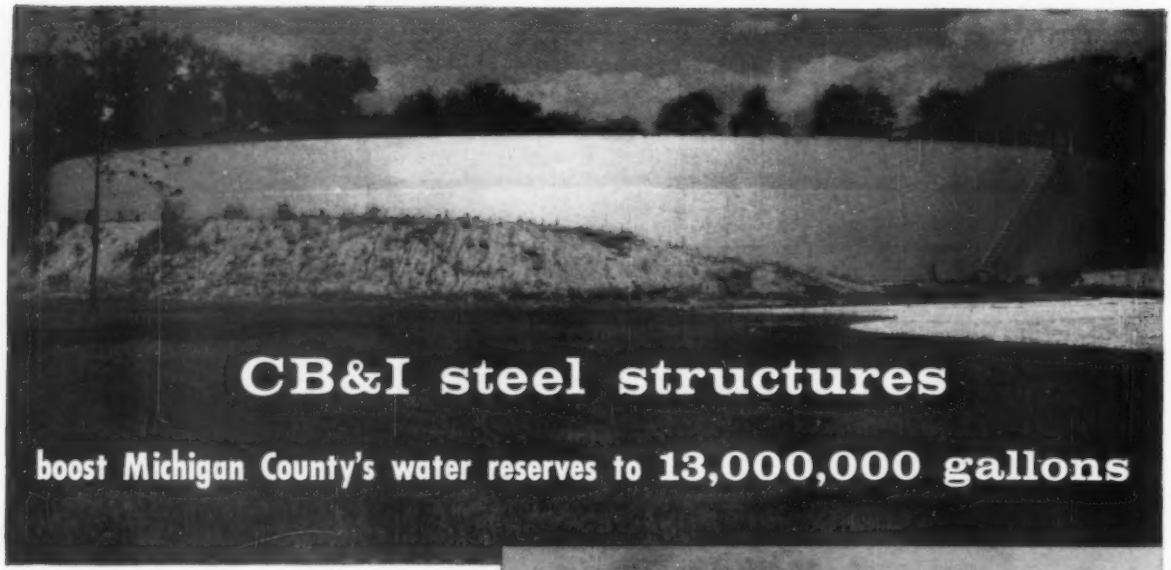
A "LAND BANK" to provide sites for in-city industrial expansion has been established in Philadelphia as a cooperative venture among the city government, the Redevelopment Authority and local business.

The "bank"—believed to be the first of the type in the country—calls for the creation of a supply of land upon which industry can draw and which, at the same time, will make it possible to convert industrial slums into modern industrial parks. The new law authorizes the city to transfer parcels of city-owned land to the Redevelopment Authority, which will sell or lease tracts to industries. Proceeds will go to a special fund which will be used to purchase new sites — particularly those which are now blighted or poorly used. At a later stage, a nonprofit corporation, to be financed equally by the city and the business community headed by the local Chamber of Commerce, will be organized to assist the Authority in preparing sites and selecting industrial tenants.

The first "deposit" in the land bank has been provided by an ordinance which designates 113 acres of land adjoining the North Philadelphia Airport to be developed under the new plan.

According to Mayor Richardson Dilworth, the program is part of an overall effort to draw industry into Philadelphia by making available attractive sites. A recent survey showed that a shortage of suitable land has been the major obstacle to industrial expansion within city limits. Under the program, the land to be transferred to the Redevelop-

(Continued on page 29)



CB&I steel structures

boost Michigan County's water reserves to 13,000,000 gallons

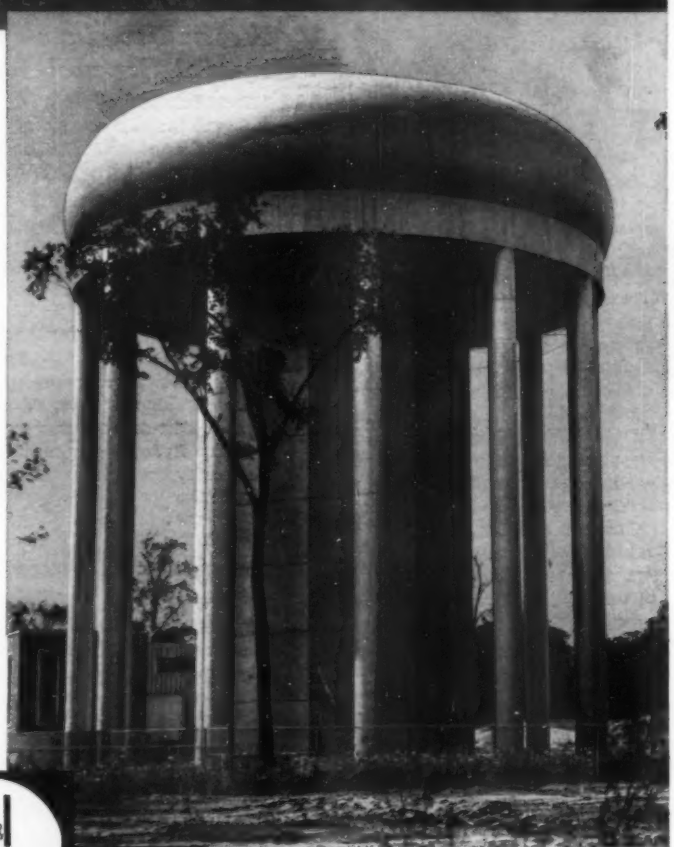
These two CB&I-built, all welded, structures share the responsibility with two 1,000,000-gallon Horton® radial-cone elevated tanks for providing Southeastern Oakland (Michigan) County with 13,000,000 gallons of dependable water storage.

In Oakland County, as in water-wise municipalities all over the country, CB&I water storage structures have already become an *integral part* of water commission or water department planning for increasing water needs.

Whether you require as little as 50,000 or 10,000,000 gallons or more of storage, you too can rely on CB&I's 67 years of *craftsmanship in steel* . . . to provide *your* community with assurance of *proven* engineering, fabricating, erection and trouble-free service life. In tanks and towers, as in any municipal service—it's proof of past performance that counts. And . . .

YOU CAN BE *SURE* WITH STEEL

. . . AND *CERTAIN* WITH CB&I



top: Horton cone-roof reservoir meets increased water needs of Southeastern Oakland (Michigan) County with 10,000,000-gallon water storage capacity.

bottom: Graceful Hortonspheroidal® tank minimizes pressure variations and meets peak load demands with gravity flow from 1,000,000-gallon elevated reserve.

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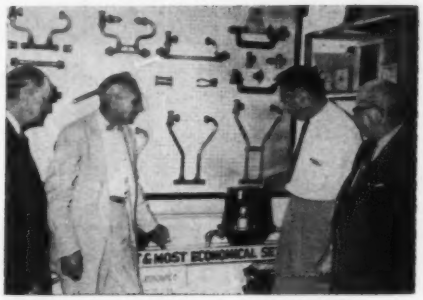
Can anyone beat the South Carolina record of eleven seconds for changing a water meter?

Sets Meter Changing Record



John H. Ford (without coat) demonstrates the yokebox to three officials at the meeting.

JOHN R. BETTIS, of the Charleston, S. C., water department holds the South Carolina championship for speed in changing meters. He won it at the annual meeting of the South Carolina Water and Sewage Works, recently held at Sumter, S. C. His record, changing meters in a Ford Yokebox, was 11 seconds, bettering the old record of 19 seconds, which was set by K. O. Mims, who is a resident of Sumter.

The meeting was held at the Cities Supply Company offices of Sumter. This company serves as a central supply agency for many water works in the Atlantic Seaboard area. M. B. Randle, president of the company, keeps a running inventory of 3,500 separate items, mostly pipeline maintenance and meter repairs.

Approximately 300 attended the Sumter meeting, breaking all previous records.

Fresh Water from the Sea May Cost 60c per 1,000 Gallons

FRESH water may be available from the ocean at a cost of only 60 cents per 1,000 gallons. If intermediate and pilot plant work now started are successful, the U. S. Department of Interior's Bureau of Saline Water feels reasonably certain that large-scale plants may supply fresh water from the sea at this figure.

California municipal electric systems and three private power companies currently are investigating a cooperative program with the Bureau of Saline Water to investigate economical ways of developing this source of fresh water. The municipal utilities are the Los Angeles Department of Water and Power, the Pasadena Municipal Light and Power Department, and the public service departments of Glendale and Burbank. The private companies are the California Electric Power Company, the Pacific Gas and Electric Company, and the San Diego Gas and Electric Company.

The group is considering various methods of using partly spent low temperature steam from steam electric power generating stations for the distillation. The group also is exploring ways and means of setting up a pilot test plant for saline water conversion research, possibly at Southern California Edison Company's Mandalay Steam Station, which is located near the City of Oxnard.

Wichita, Kans., Ends City-Company Water System

WICHITA, Kans., has just written "finis" on one of the oddest administrative arrangements for a municipal water supply system in the nation. In a financial transaction involving over $41 million, the city recently purchased its water distribution system from the Wichita Water Company, Inc., a subsidiary of the American Water Works Company of Philadelphia. The transaction was the largest in the history of the city and also the largest involving the sale of a water works property for the American Water Works Company, Inc.

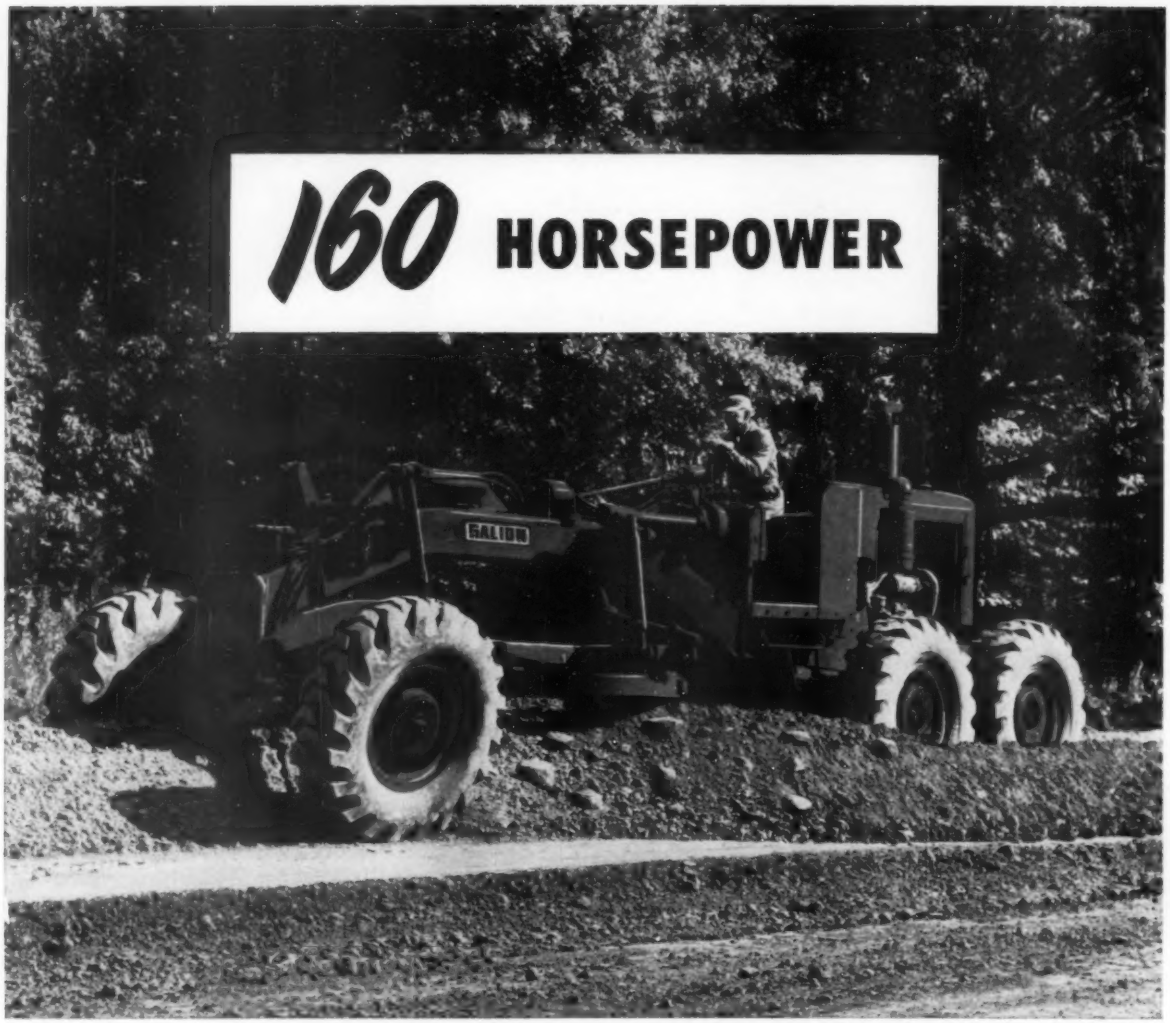
The peculiar arrangement that was ended by the transaction required the city to supply and treat the water, selling it to the Wichita Water Company, which, in turn, resold it to the public. Thus, the water changed ownership three times during its use.

Originally the company supplied the water and distributed it. However, the water came from wells, and was very hard and brackish and had a disagreeable taste. In the late 1930's Wichita concluded an agreement with the company whereby the city would obtain a much better water from the Equus beds, some 30 miles away, soften it, and sell it to the company for distribution. Wichita was in a better position to undertake this capital improvement than the company, since the city could obtain a grant from PWA that would meet 45% of the cost. This arrangement was completed in 1940 and continued until last year. The company placed a 45% surcharge on its water bills to residents earmarked for this improvement, and 100% for the charge to out-of-city residents.

In 1955, Wichita city officials started studying the advisability of acquiring the distribution system and thus simplifying the financial and administrative details of their water system. This culminated in the purchase last fall, completed by a two-circuit telephone hook-up permitting the transaction to be carried on simultaneously between Wichita and New York.

Robert H. Hess, who has been directing the supply portion of the system, now takes over as director.

Negotiations for the purchase were started by Commissioner A. E. Howse in 1955. They were culminated by Mayor E. E. Baird, City Manager Frank H. Backstrohm and other officers of the city and the company.



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General and Export Offices—Galion, Ohio, U.S.A.

GALION
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MOTOR GRADERS & ROLLERS

(Continued from page 25)
ment Authority for industrial purposes will be selected by the Mayor and the Director of Commerce, with the approval of the City Planning Commission and the City Council. These parcels of land will be large enough to permit development of modern campus-type "industrial parks," with careful control of plant design, parking arrangements and landscaping. The city is authorized to improve the site areas by grading and installing utilities where needed, with the costs of such improvement to be repaid to the city out of receipts from the sale or lease of the land.

According to Philadelphia's Commerce Director, Frederic R. Mann, Philadelphia now has 1,200 acres of city-owned land available for industrial use. A vigorous promotion program is expected to use approximately 300 acres a year. An estimate by Mr. Mann places the land bank program's potential—even restricted to the present 1,200 acres—at an additional $600 million yearly in retail sales for Philadelphia.

34 New Master Plans Slated for N. J. Cities

THIRTY-FOUR New Jersey municipalities will undertake to prepare master plans for their development, if the Urban Renewal Administration approves an application for $197,140 filed by Commissioner Joseph E. McLean of the New Jersey Department of Conservation and Economic Development. The application, filed under the provisions of Title VII of the United States Housing Act of 1954, which provides for urban planning assistance to communites of under 25,000 population, was prepared by the Department's State Planning Bureau. Added to the federal grant will be state and municipal funds totaling $201,740, bringing the total cost of the project to $308,880.

The program proposed under the application, the third for New Jersey municipalities filed under the Act, will raise the number of participating municipalities to 94. The New Jersey program is the largest of its kind in the nation.

The grant, if approved, will be made to the Department of Conservation and Economic Development. The State Planning Bureau will administer the program and will undertake to prepare plans for at least one of the communities. Participating municipalities already have selected professional planning firms and consultants who will prepare their plans under a contract with the state; consultants will work directly with the communities. The entire project is expected to be completed within an 18-month period.

The program is designed to promote the orderly growth of the communities participating, and will include the preparation of a comprehensive master plan for each community including suggested zoning and subdivision regulations; the basis for an official map; a capital improvement program; and urban renewal recommendations.

Group Insurance Program for Kentucky Municipal Employees

ONE OF THE HIGHLIGHTS of the recent Annual Conference of the Kentucky Municipal League was the passage of a resolution creating the Kentucky Municipal League Group Insurance Trust. The Trustees will be composed of the President, Vice President and Executive Secretary of the League and will administer the Group Insurance Program. The Group Program is underwritten by the Washington National Insurance Company, Evanston, Ill. This company has written eight very successful municipal association programs.

The plan provides Group Life, Accidental Death, Hospital and Surgical benefits for officials and employees of member municipalities and their families. The League will administer the program, collect all premiums and pay all claims.

The plan will become effective when 600 employees have been enrolled. Arrangements have been made for those municipalities having 25 or more employees to have interim insurance at the same cost.

Denver Income Tax Defeated in Special Referendum

IN AN ELEVENTH hour vote Denver's proposed city income tax was defeated in a special mid-December public election. The vote was held six months prior to the June 10, 1958 date previously set for the referendum. Thus the council-backed local income tax which was first enacted on September 3 last year was not levied on January 1 as originally planned.

The vote that defeated the income levy was divided 56% against the tax and 44% for the tax. Just under 104,000 people voted, a record in Denver for a special election.

Had the proposed income tax been accepted by the Denverites, a one-half of 1% levy would have been placed on the first $5,000 of all income earned in the city regardless of residence. A tax of 1% would have been levied on all income above $5,000 as well. An exemption provision would have excluded from taxation the first $1,000 of income of all heads of families.

REPRESENTATIVE MUNICIPAL BOND ISSUES
December 10 to December 23, 1957

Date of Issue			*Purpose*	*Average Maturity (Years)*	*Net Interest Cost or Basis (Per Cent)*	
12/10/57	Elkhart, Ind	$109,000	Park	6½	2.7435	
12/11/57	Gallipolis, Ohio	125,000	Municipal Building Improvement	14	3.598	(basis)
12/12/57	Herrin, Ill	440,000	Water Revenue	20½	4.0488	
12/12/57	Laconia, N. H.	86,000	Water	5¼	3.03	(basis)
		60,000	Land Acquisition	5½	3.03	(basis)
12/12/57	Webster, N. Y.	629,000	Public Improvement	12⅝	3.52	(basis)
12/16/57	Brown Co., Wis.	340,000	Memorial Auditorium	9½	2.6973	
		100,000	Park Improvement	6	2.6973	
12/16/57	Elyria, Ohio	221,000	Parking Improvement	5¾	3.15	(basis)
12/17/57	Greenville, Miss.	50,000	Municipal Building	4¾	3.4598	
12/17/57	Jefferson Co., Ind.	100,000	Bridge—1957	5⅝	2.97	(basis)
12/17/57	Toledo, Iowa	43,000	General Obligation Swimming Pool	8½	3.055	
12/17/57	Wakefield, Mass.	370,000	Water	9⅝	2.95	(basis)
12/17/57	Whitehall, Ohio	141,377.35	Road Improvement Special Assessment	6½	4.04	(basis)
12/19/57	Guilderland, N. Y.	46,000	Improvement—1957	7¾	3.21	(basis)
12/19/57	Huntington, N. Y., Union Free Sch. Dist. No. 4	2,842,500	School—1957	16½	3.492	
12/19/57	Tonawanda, N. Y.	3,768,000	Improvement	13¼	3.07	(basis)
12/23/57	Spencer, Iowa	16,000	Fire Equipment	5½	2.89	(basis)

Compiled from THE BOND BUYER

Public Safety

Mutual Fire Aid Freely Given

TO provide more and better fire protection for the people of Grandville, Mich., and to offer to our neighbors assistance without delay, Grandville has surrounded itself on four sides with reciprocal agreements. All units are volunteer departments. The agreements make available to the City of Grandville upon call the following pumping engines:

2—1,000 gallon
5— 750 gallon
13— 500 gallon
2— 400 gallon
19,000 ft. 2½ inch hose

All those engines are under two-way radio control on a common frequency. A base station maintained by each department makes it possible to request, dispatch, and control all equipment from the base station, from the field, while in transit or at the scene of the disaster.

The city has called on its neighbors for assistance, and has been requested to give assistance. It is a common occurrence for a neighboring department to notify us that they have a crew and equipment standing by if needed. Because of the common radio frequency, each department monitors the fire calls of the others.

Benefits Derived

The immediate result of our mutual assistance pact has been complete elimination of the "which-side-of-the-street" jurisdiction. The radio tells everyone what, when, and where the others' equipment is. The feeling of cooperation and knowledge that your neighbor is standing beside you if needed is invaluable in creating good will. We are better neighbors as a result of our fire pact, particularly because we do not worry about dollars if our neighbor needs help. All services given shall be without remuneration.

BERNIE PASSAGE
City Superintendent
Grandville, Mich.

Helicopters a Police Tool

THE Erie County Sheriffs Department, through an arrangement with the Bell Helicopter Corporation, located in this area, has, for the last two years, been engaged in a series of tests and evaluations concerning a Bell Helicopter for law enforcement. We have on many occasions utilized the helicopter for rescues, searches and traffic control. In addition, it has been used for public relations programs, especially in connection with the Junior Deputy Sheriffs League, and safety programs involving the school children of Erie County.

ROBERT A. GLASSER, *Sheriff*
Erie County, Buffalo, N. Y.

School Crimes in New York City

POLICE Commissioner Stephen P. Kennedy of New York City has surveyed the number and nature of the felonies, misdemeanors and offenses committed in the city's 846 public schools (elementary, junior and high schools) and among the 950,000 students for the period January 1 to November 25, 1957.

The survey showed 515 felonies and a total of 2,783 misdemeanors and offenses reported to the police, representing incidents occurring both inside and outside of school buildings on school property, and both during school hours and at all other times. The following is a breakdown by borough:

Borough	Felonies	Misdemeanors and Offenses	Total	No. of Schools
Manhattan	134	592	26	165
Bronx	95	445	540	144
Brooklyn	172	1,084	1,256	278
Queens	97	543	640	212
Richmond	17	119	136	47
City-Wide Totals	515	2,783	3,298	846

The largest concentration of arrests for juvenile delinquency, arising from incidents in school buildings during school hours, occurred in the 14- and 15-year age groups. Arrests of persons 16 years and over are substantially less as shown in the following table:

Ages	Felonies	Misdemeanors	Total Arrests
7	0	1	1
8	0	0	0
9	2	6	8
10	4	10	14
11	12	3	15
12	14	21	35
13	43	37	80
14	54	57	111
15	50	70	120
*16	19	50	69
*17 and over	8	61	69
	206	316	522

There were no incidents of any kind reported in or on the property of 344 of the 846 schools. Of the 502 schools for which incidents were reported, there were 143 for which felonies were reported.

Police Commissioner Kennedy is of the opinion that to assign members of the uniformed force to patrol the corridors of schools during school hours would hamper police coverage throughout the rest of the city, and is neither practical nor morally desirable.

* Arrests from 7 to 15 years of age are for juvenile delinquency; for 16 and over, for the crime charged.

Now! Telegraph and Voice in One Alarm Box

Gives Fastest Action for Fires and Emergencies

Now, you can have real two-in-one protection for your community . . . fast, automatic signalling for fire alarms and multi-purpose voice for general emergencies. The Gamewell "Citizen's Emergency Center," just developed as a combination system, provides the ideal type of communication for reporting the two basically different types of emergencies found in every community. The inherent speed, safety and positive identification features of telegraph fire reporting are retained — plus an independent voice circuit for reporting non-fire emergencies over a special private-line circuit to police or central switchboard. A Police Privacy Alarm System is also available.

Write for complete details! Give your community maximum protection at minimum cost. Here is the opportunity for a completely integrated and independent Fire and Emergency Alarm System always ready for use on a 24-hour basis. It can be added to existing system or completely engineered as a new installation. Ask for FREE SURVEY and further details from:

GA 7-17

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Please send information as checked below:
☐ Catalog data on Citizen's Emergency Center
☐ Details on FREE Survey
☐ Have salesman call

Name .....
Title .....
Street .....
City ..... *Zone* .... *State* .....

Why a single investment in Blaw-Knox Universal Forms lets you take on a wider variety of curb and gutter work:

Completely interchangeable

In community street construction you can be faced with form changes that eat away big chunks of your profit. For instance, one job may require different spacing for division plates and your present forms won't work. Blaw-Knox Universal forms are completely interchangeable. Slots for division plates are spaced at one foot intervals, allowing you to tailor the same basic form system to many different jobs.

Save time and money

This basic standardization of form systems makes it easier to calculate the job, set and strip the forms, practically eliminates the necessity for handwork. There's no need for carpentry, no waste of single-use materials. The self-aligning feature eliminates guesswork and reduces the possibility of error.

Built sturdy for years of service

Many contractors have used Blaw-Knox Universal forms for ten, even twenty years. They're sturdy enough to take rough handling on job after job, light enough to be moved in a pick-up truck.

A form for every job

Blaw-Knox Universal Forms are available for every type of curb, curb and gutter, integral curb, or sidewalk job from straightaways to the most complicated layouts. See your Blaw-Knox Distributor—he can help you cut time and make more money with the right Blaw-Knox Universal Forms.

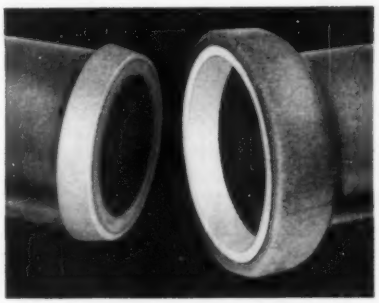
BLAW-KNOX

BLAW-KNOX COMPANY

Construction Equipment Division
30 Charleston Avenue, Mattoon, Illinois

lower installation costs FIVE WAYS with longer, stronger AMVIT Clay Pipe

Outstanding Mechanical Joint of Plasticized Resins of Polyvinyl-Chloride Gives Lower Cost-In-Place



A million dollar expansion program to increase production facilities for Amvit* was completed earlier this year. New horizontal extrusion machines now manufacture pipe in over four feet lengths.

Longer lengths lower installation costs, reduce the number of joints, lessen the number of pipe sections to be handled. *Here's how you can save on installation with Amvit:*

1 SAVES LABOR

No other materials such as caulking, joint compounds, hot pots or ladles are needed to make the Amvit Joint. The joint is on the pipe delivered to the job ready for use. Nothing else is needed. Just push the pipe together and the joint is complete.

2 IMMEDIATE BACKFILLING

As soon as the joint is made, backfilling can start. No need to wait for unnecessary delays caused by bad trench conditions, high-water table, unstable ground or running sand. Barricades can be removed and streets opened days sooner.

3 QUICK TESTING

No need to wait days to see if a line has passed test. A look at the completed joint will tell. Thus, engineers can inspect and accept the line allowing the contractor to receive payment quicker.

4 PERMITS DEFLECTION, ABSORBS SHOCKS

Amvit is made from a plastic which has many characteristics similar to rubber. It is pliable, permitting deflection without leakage. It is resilient, can absorb shock and vibration. This allows for settlement of pipe in poor ground conditions after backfilling.

5 COMPLETE FITTINGS

Amvit is furnished on all standard fittings, as well as pipe. This will permit a uniformly tight line from house wall to treatment plant.

Amvit line being installed in Amherst, Ohio

*T. M. Registered.

For more information on how Amvit can help cut your sewer project costs, write or call American Vitrified Products Company, National City Bank Building, Cleveland, Ohio, or our office nearest you.

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CLEVELAND, OHIO

MANUFACTURERS OF: Clay Pipe, Flue Liners, Clay Liner Plates and Concrete Pipe.

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Maximum fire protection demands maximum effectiveness. Your firemen—dependable, able, and ready at a moment's notice—must have equipment of the same qualifications. Every one of the parts that go into your 2-way radio must be the finest available . . . must be guaranteed for long life . . . must keep the radio working in all emergencies. No wonder 3 out of 4 of the nation's radio-equipped fire departments depend upon Motorola 2-way radio and HANDIE-TALKIE® radiophone.

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Parks: Good Spokesmen for Local Government

WELL-KEPT parks and handsomely planted horticultural displays are good spokesmen for municipal government. Thus beautified public areas can accomplish a major part of the public relations job of local government provided they are well kept, comfortable and clean. So said Walter J. Barrows, park superintendent of Whittier, Calif., at the American Institute of Park Executives meeting last fall.

Parks and recreation areas can do these three "invisible selling" jobs for your community, according to Mr. Barrows:

1. **Sell your city government:** for most of the public, government is something to be considered only when a traffic ticket or an order to clean out a fire hazard is received. But people gain a different view of local government when they walk down a well-shaded street and see well-cared-for trees and grass.

2. **Sell your community:** a well-kept neighborhood with attractive parks and streets will attract good citizens.

3. **Sell your park and recreation program:** this means enlisting the help of the public in protecting public property and in helping to cut down unnecessary maintenance costs. Let the public know what the parks are attempting to do and do not try to conceal the costliness of the efforts, for if the public knows how much is being spent it will begin to show more respect for public property. Face the taxpayers with facts and figures and let them know just what could have been purchased in the way of facilities and other services with the money that was spent on the operation of grounds cleaning because of their own carelessness.

Programming Greatest Need in Fulfilling Park Goals

A DETAILED plan for developing 375 acres of new parks and playgrounds in Scranton, Pa., has been submitted to the administration of this city of 125,000 persons. To fulfill the goals of the plan which includes a municipal golf course, 14 new neighborhood playfields and one 33-acre and one 61-acre district park, the plan calls for annual purchases of new land areas in accordance with a definite expenditure program adjusted to the financial capabilities of the city.

The plan, prepared by Isadore Candeub and Associates, city planning consultants, praises the city for having vigorously pursued a program of neighborhood play area development in the past. Scranton today comes close to meeting the National Recreation Association standard of one acre of such playground space per 1,000 residents.

Vigorous completion of the new plan is recommended in order to increase Scranton's attractiveness to new industry.

Oakland Kiosk Spurs Downtown Beautification

THE Oakland, Calif., Park Department's contribution to a business district beautification program is a colorful kiosk, 3-feet square x 9-feet tall, which is providing enjoyment and conveniences for shoppers in downtown Oakland.

Installed and dedicated last October, the kiosk is of porcelain enamel with a chartreuse, vermillion and charcoal color scheme. At night it sheds a warm glow from indirect light hidden in the roof of the structure. Sound is piped to the kiosk so that soft music can be played throughout the day. It is part of a beautification program for the downtown section of Oakland which will eventually transform the area of Broadway into a park-like area similar to that found in new suburban shopping centers.

A survey conducted by Oakland's park department showed that women shopping in Oakland felt that the core area of the city should be made more beautiful and interesting and that more attention should be paid to conveniences for shoppers, such as drinking fountains and benches.

With these thoughts in mind, the Park Department designed the kiosk which has flower boxes on two sides. A drinking fountain and a waste paper receptacle take up the remaining two sides. Above the waste paper chute at eye level is a cage of birds to give life and interest to the kiosk. Benches in harmonious colors are placed on both sides of the kiosk.

The kiosk was sponsored by the Breuner Company, designed by a landscape architect for the Park Department and fabricated by Payne-Mahoney, Inc., of Oakland, Calif.

Oakland, Calif., Park Department's contribution to the city's downtown beautification program is a colorful porcelain enamel kiosk complete with live birds, soft music and a drinking fountain. Installed last October, the 3-foot x 9-foot structure has proved a boon to shoppers in downtown Oakland.

Informative Catalogs - Yours For The Asking!

These catalogs contain information of great value to public officials and engineers. Write directly to the manufacturers, or use the Post Card on the insert following Page 54.

Makes Photocopies in Seconds

275 This new Thermo-Fax copying machine makes copies of written, typed, printed or drawn originals in seconds, for as little as five cents per copy. The easy-to-use, electric machine will solve paperwork problems in any municipal office. It is fully described in literature from MINNESOTA MINING & MFG. CO., DEPT. NZ-07, ST. PAUL 6, MINN.

Street-Lighting Cables

276 This 8-page Lighting Cable booklet describes quality Ankoseal street-lighting cables, series-lighting cables, pole and bracket cables, and sparkway cables for multiple circuits. For the right cable answer to your city's lighting requirements, get your copy from THE ANSONIA WIRE & CABLE CO., ASHTON 9, R. I.

Install Control Valves Quickly, Easily

277 New water control valves can be added and old valves replaced quickly with Mueller cut-in sleeves and valves. Only a minimum of excavation is necessary. Moreover, the danger of broken pipe joints is eliminated. Get the full story from MUELLER CO., DECATUR, ILL.

Survey Marking and Identification Equipment

278 Can be depended upon when it is furnished by BATHEY MFG. CO. Bathey offers surveyor stakes, identification caps, and permanent solid brass markers for setting in concrete. For literature, write the company at 100 S. MILL ST., PLYMOUTH, MICH.

Faster Refuse Collection

279 For more speed and greater economy in refuse collection, an increasing number of cities are specifying Daybrook Power Packers. These efficient refuse collection bodies feature special "force-crush-pack" action. For *Specification Sheet No. PP-1620-58*, write DAYBROOK HYDRAULIC DIVISION, YOUNG SPRING & WIRE CORP., BOWLING GREEN, OHIO.

Speeds Up Street Paving

280 With new Cationic Bitumuls, you can treat "hard-to-coat" aggregate—damp or dry—quickly and effectively. Cationic Bitumuls provide fast initial set and rapid cure even in deep placements, assuring early stability and almost immediate rolling. Streets are quickly opened to traffic. Get the full facts from AMERICA BITUMULS & ASPHALT CO., 320 MARKET, SAN FRANCISCO 20, CALIF.

Forms for Every Curb and Gutter Job

281 Blaw-Knox Universal Forms are available for every type of curb, curb and gutter, integral curb, or sidewalk job from straightaways to the most complicated layouts. This basic standardization of form system makes it easier to calculate the job; set and strip the forms. It virtually eliminates the need for handwork. Write BLAW-KNOX CO., CONSTRUCTION EQUIPMENT DIV., 30 CHARLESTON AVE., MATTOON, ILL.

Efficient Truck Crane

282 The 35-M truck crane is a versatile 25-ton unit designed for maximum mobility and fast conversion to dragline or clamshell operation. Its telescoping-type outriggers give more stability for extra heavy lifts. Air control gets more work done faster. Write MARION POWER SHOVEL CO., MARION, OHIO.

Low-Cost Bituminous Distributor

283 Now you can do an economical job of heating and applying all types of bituminous materials on your street construction and maintenance work with the new Thriftline. This low-cost bituminous distributor is easy to operate. It is available for truck mounting in 1000-, 1,250- and 1,500-gallon sizes. Write MUNICIPAL SUPPLY CO., SOUTH BEND, IND.

For Every Municipal Sweeping Job

284 Every job from grass sweeping to snow removal is fast and easy with these two-way hydraulic sweepers. The sweepers are easily mounted on tractor or loader. They are described and illustrated in a new booklet from M-B CORP., NEW HOLSTEIN, WIS.

Safety Flasher Folds Like Umbrella

285 Use this Safety Flasher as an emergency flare, to aid traffic control, and for any emergency situation. The portable unit folds like an umbrella to a convenient carrying length of 26½ inches. It operates on standard flashlight batteries, and is clearly visible for many city blocks. Get full details from UNITED SALES CO., BOX 918, WICHITA 1, KANS.

Powerful Motors for Police, Fire Boats

286 Called "the world's first outboard V-engine," this newest Sea-Horse will provide dependable power for police, fire and emergency boat service. The Sea-Horse V-50 is a 4-cylinder, 70.7-cubic inch, 50-hp unit designed to operate smoothly, silently and economically. It is fully described in the free *1958 Sea-Horse Catalog* from JOHNSON MOTORS, 437 PERSHING RD., WAUKEGAN, ILL.

Makes Overhead Maintenance Fast and Easy

287 With a low-pressure hydraulic system and center mast counterbalancing, the 2500 raises and lowers fast and easy, simplifying such overhead maintenance jobs as street light repairs and tree pruning. Elevating locations of the manually-operated hydraulic ladder are infinite; and the angle of elevation can be changed with the ladder fully extended. Get the full story from J. H. HOLAN CORP., 4100 W. 150th ST., CLEVELAND 11, OHIO.

Win $100 Savings Bond

288 In celebration of Goldak's 25th Anniversary, the company is offering a $100 savings bond to the person who can think of the best name for Goldak's new transistorized pipe locator. For the full details on entering this contest, write THE GOLDAK CO., INC., 1544 W. GLENOAKS BLVD., GLENDALE 1, CALIF.

Measures Radiation

289 Should a bomb fall it is vital to know the degree of contamination by gamma and beta rays. Available are a remote area gamma monitor and a gamma-beta portable survey meter. For free, illustrated, technical literature and prices, write RIGGS NUCLEONICS CO., 717 N. VICTORY BLVD., BURBANK, CALIF.

Pipe Coupling Adapters

290 Connecting all types of flanged fittings and plain-end pipe—any type or size—is fast and easy with Smith-Blair flanged coupling adapters. With these adapters there is no cutting of pipe to exact lengths, no threading or flanging needed. Write SMITH-BLAIR, INC., P. O. BOX 666, SOUTH SAN FRANCISCO, CALIF.

Power Tool Mechanizes Service Taps

291 The City Water Department at Cedar Rapids, Ia. mechanizes service taps with this versatile new power tool. The Lawco Jr. portable pipe threader drives tapping machines for making service connections, eliminating the exhausting job of operating the tappers manually. Get full details from VELOCITY POWER TOOL CO., 201 N. BRADDOCK AVE., PITTSBURGH 8, PA.

Increased Horsepower for Heavy-Duty Engines

292 WISCONSIN MOTOR CORP., MILWAUKEE, WIS., has stepped up the horsepower range of its line of heavy-duty, air-cooled engines from a high of 37 hp to a new top rating of 56 hp. These engines are widely used for highway maintenance and general municipal construction, materials handling and many other applications. Details on request.

An Elm Tree for Municipal Planting

293 Increase the attractiveness of city streets and boulevards by lining them with Christine Buisman Elm trees. These trees grow rapidly, are extremely resistant to Dutch elm disease and phloem necrosis, and have numerous ascending branches which produce a great mass of dark green foliage. For information and prices, write THE WILLIS NURSERY CO., OTTAWA, KANS.

Prevent Mosquitoes

294 A safe, economical way to kill mosquito larvae in such breeding places as swamps, catch basins and ditches is with efficient Tossit capsules. All you do is throw the Tossits into infested water, and the capsules dissolve, spreading the solution rapidly in all directions. Write WYCO INTERNATIONAL, 4811 CARNEGIE AVE., CLEVELAND 3, OHIO.

(Please turn to page 41 for more Bulletins)

200 GPM +400 GPM 600 GPM

The PLUS value of Layne Gravel Wall Wells

400 GPM more water delivered by the use of a Layne Gravel Wall Well

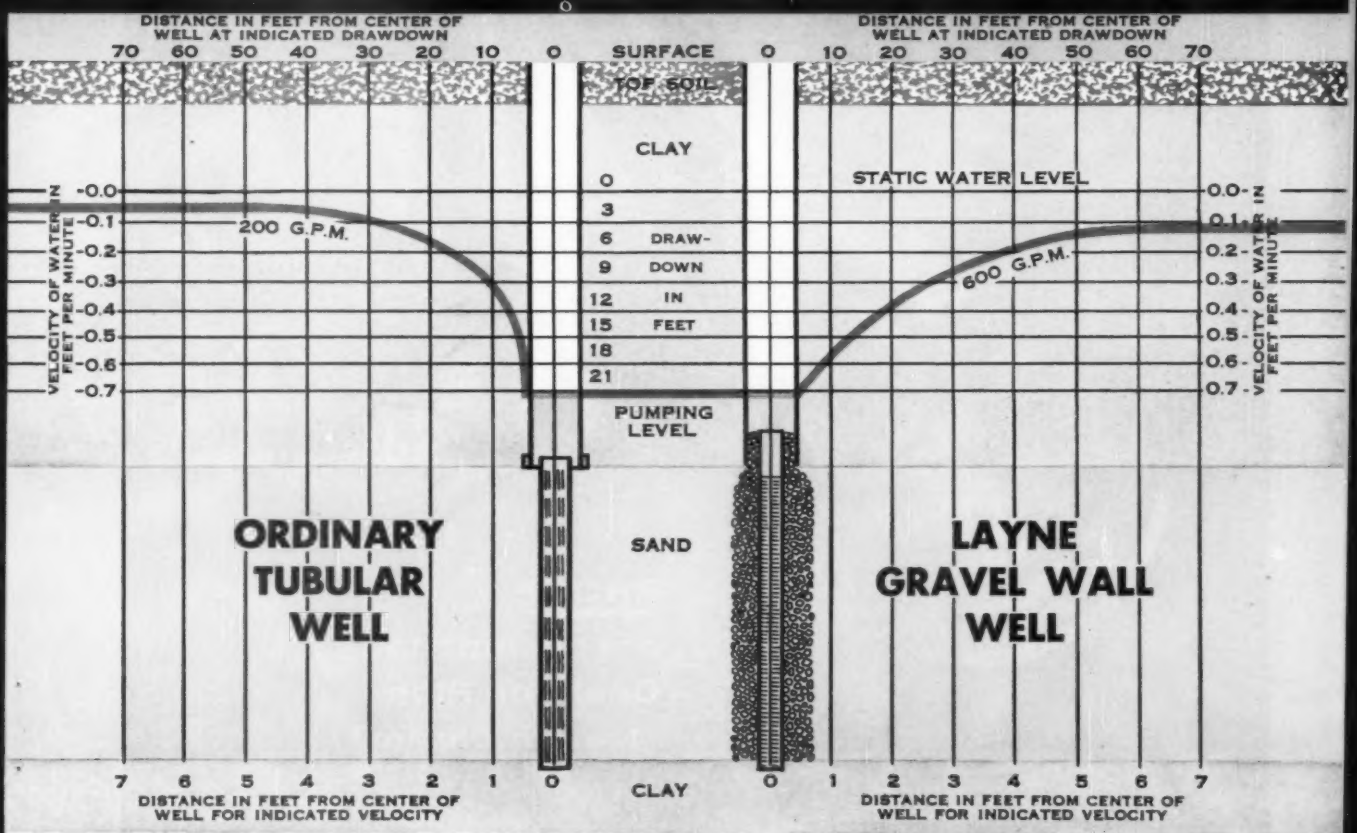
Pumping costs are a factor in any municipal water system. That's why Layne gravel wall wells are considered a money-saving investment.

Layne underreamed gravel wall wells equipped with Layne screens permit large screen openings which allow greater inlet velocities and reduce friction which in turn reduces wear on the shutter screen. Drawdown is moderate, pumping head low and operating costs proportionately lower.

Layne gravel wall wells are another example of Layne's experience and leadership in the field—gained around the world for over 75 years.

Our only concern—our only business is water.

PRODUCTION AND OPERATING CHARACTERISTICS OF TWO TYPES OF WELLS.



Layne

LAYNE & BOWLER, INC., MEMPHIS

General Office and Factory — Memphis 8, Tenn.

Layne Associate Companies throughout the world.

Water Wells • Vertical Turbine Pumps • Water Treatment

LAYNE & BOWLER, INC., Memphis 8, Tenn.

Gentlemen: Please send me bulletin No. CW-9.

NAME_____

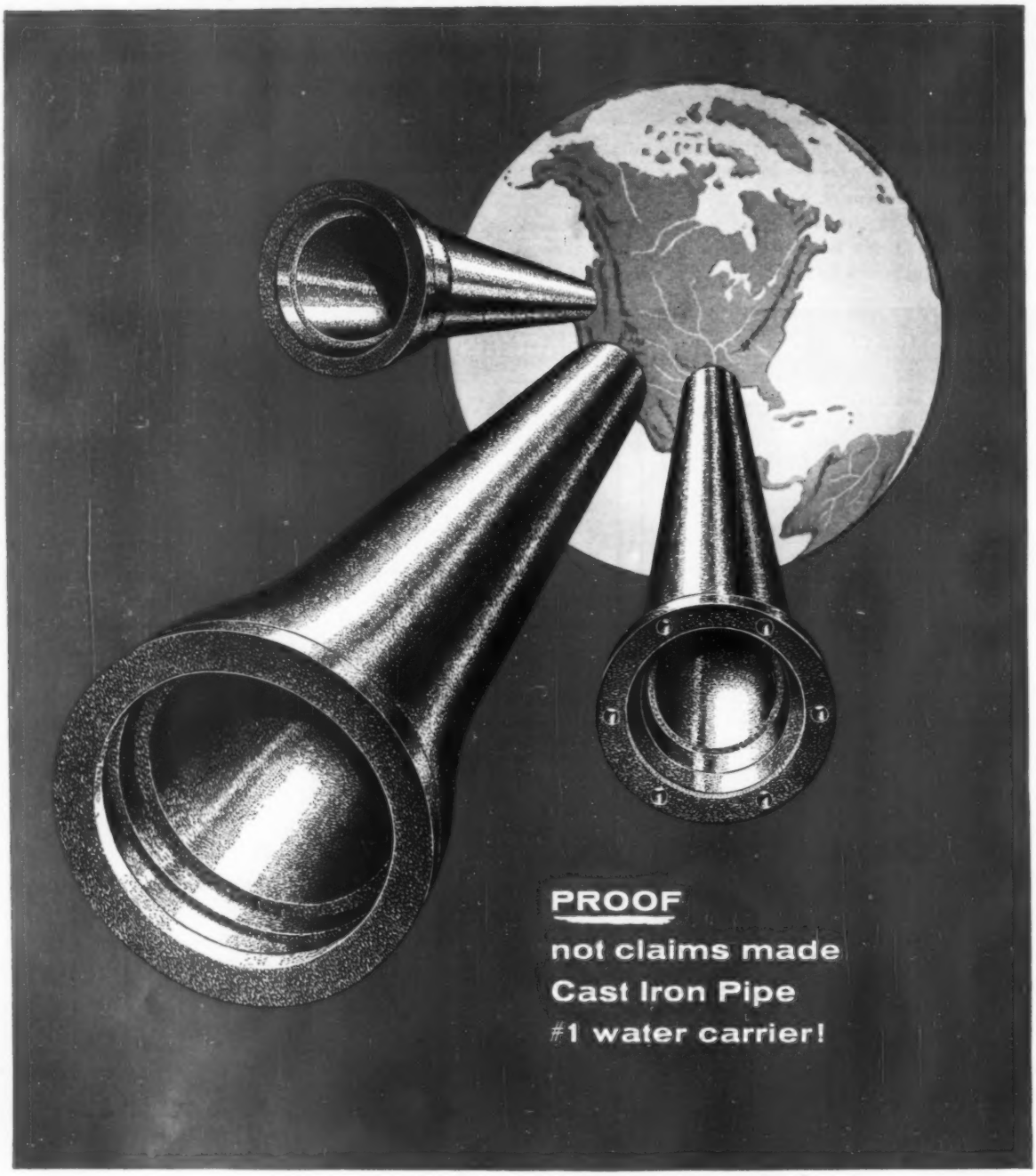
TITLE_____

ORGANIZATION_____

ADDRESS_____

CITY_____ STATE_____

TAKE THE DOUBT



MODERNIZED **cast iron**

OUT OF PIPE BUYING

Specify Modernized Cast Iron Pipe and be SURE!

6 reasons why Cast Iron Pipe is #1 choice of U.S.A.

1. **EXTERNAL LOAD RESISTANCE...**
   6" Class 150 Pipe withstands a crushing load of 17,900 pounds per foot . . . nearly 9 tons.

2. **HIGH FLOW CAPACITY...**
   Cement lined cast iron pipe and fittings will not tuberculate . . . delivers a full flow for the life of the pipe.

3. **LONG LIFE...**
   42 North American cities are still using cast iron water mains laid 100 years and more ago. Hundreds more have passed the 50 year mark.

4. **BEAM STRENGTH...**
   Cast Iron Pipe is inherently tough . . . stands up under heavy traffic load, soil displacement and disturbance.

5. **CORROSION RESISTANCE...**
   Cast Iron Pipe effectively resists corrosion . . . vital factor in its long life and dependability.

6. **TIGHT JOINTS...**
   A full range of leak-proof, low cost, easy-to-assemble joints for pipe and fittings are available for all conditions.

Before you choose any pipe remember this important fact . . . it will save you many a headache later.

In all the history of water systems no substitute pipe has ever come close to matching cast iron pipe's century old record of dependability, long life and long term economy.

Specify cast iron pipe, and your pipe worries are over, not just beginning. Cast iron's performance is based on PROOF not claims!

THE MAN WHO CHOOSES CAST IRON PIPE TODAY WON'T PAY FOR IT AGAIN TOMORROW!

CAST IRON

Cast Iron Pipe Research Association
Thos. F. Wolfe, Managing Director
Suite 3440, Prudential Plaza, Chicago 1, Ill.

pipe FOR MODERN WATER WORKS

Working Together
to Finish the Job Fast

They make a money-saving, time-saving pair . . . a Bosch (Germany) Builder's Hammer and a Homelite Carryable Generator. You pick up and set up this gasoline-engine-driven generator anyplace fast. You plug in your easy-to-operate Bosch Hammer and do your chiseling, gouging, or drilling fast. This Homelite 115 volt AC generator delivers full 1500 watts yet weighs only a carryable 90 pounds. Close voltage control and generous overload capacity assure top performance from your power tools, floodlights, and other electric equipment. Other models available up to 5000 watts. How about a free on-the-job demonstration? Simply write, or call your nearest Homelite representative right now.

HOMELITE
A DIVISION OF TEXTRON INC.
102 RIVERDALE AVE., PORT CHESTER, NEW YORK
MANUFACTURERS OF CARRYABLE PUMPS
GENERATORS · BLOWERS · CHAIN SAWS

Catalogs for You

Write directly to the manufacturers or use Post Card, page 54

Photocopy Equipment for Rent

295 Cities can now lease their photocopy equipment economically under Apeco's new rental plan. The plan provides for the rental of standard Apeco equipment and accessories for a base period of 36 months at a nominal monthly rent. It is fully discussed in literature from AMERICAN PHOTOCOPY EQUIPMENT CO., CHICAGO, ILL.

Meters for Water Service Lines

296 For 1½- and 2-inch water service lines, the Trident Style 3 meter is simpler, costs less to buy and maintain, and is said to be equally as accurate as any compound meter. Moreover, it produces the same amount of revenue over a wide range of flows. Get the full story from NEPTUNE METER CO., 19 W. 50th ST., NEW YORK 20, N. Y.

Asphalt Liner Holds Water, Sewage

297 The Aqualiner is a prefabricated asphalt liner designed for heavy-duty service in reservoirs, municipal water supply systems and irrigation canals. Easy to install, it effectively controls and stops both leakage and seepage. Thicknesses range from ¼- to ½-inch in 4-foot widths. Get full details from PRESSTITE-KEYSTONE ENGINEERING PRODUCTS CO., 39th AND CHOUTEAU, ST. LOUIS, MO.

A Uniform Traffic Ticket

298 A uniform traffic ticket is now being used by over 35 states. It is endorsed and recommended by the American Bar Association, International Association of Chiefs of Police, National Safety Council, American Motor Vehicle Association, and other groups concerned with traffic safety. The ticket is designed to save time, promote accuracy and protect the citizen. Write WEGER GOVERNMENTAL SYSTEMS, 117 W. SHIAWASSEE ST., LANSING, MICH.

Valves and Hydrants

299 Eddy AWWA fire hydrants open smoothly with the pressure—close without water hammer. The entire operating mechanism is easily removed for inspection by one man. The company's AWWA gate valves, cutting-in valves and sleeves, and tapping valves and sleeves are quickly available. Write EDDY VALVE CO., WATERFORD, N. Y.

Economical Water Meters

300 With Hersey water meters you get accurate registration that insures full return for all water used. These meters are economical to operate and require minimum maintenance. Get the full facts from HERSEY MFG. CO., DEDHAM, MASS.

Brighter Warning Light

301 To protect workmen and motorists at street construction and repair sites, use an Escolite warning light. These bright, sturdy units are equipped with a heavy-duty flasher mechanism. They are economical to operate and maintain. Get full details from ELECTRONIC SPECIALTIES CO., BATAVIA 10, ILL.

Bin Level Indicators

302 If you want to know the amount of dry chemicals stored in hoppers, or how much salt or similar materials you have stored, you can depend on the efficient Bin-Dicator. These bin level indicators have been improved to feature a new twist lock cover and vented housing. For detailed literature, write THE BIN-DICATOR CO., 13946-A3 KERCHEVAL, DETROIT 15, MICH.

Right for Any Grading Job

303 In addition to routine grading and maintenance assignments, the Huber-Warco motor grader will spread stone or blacktop, ditch, bankslope, or any other job required of a grader with maximum efficiency and a minimum of down-time. These graders are available in both torque converter and standard transmission models. Write HUBER-WARCO CO., MARION, OHIO.

Redesigned Washfountain

304 Bradley Washfountain Co. has redesigned its Duo-Washfountain for easier installation in public washrooms. These efficient units now feature a firmer construction and more attractive appearance. There is no scuff base at the bottom so that when the hinged and larger foot-treadle is flipped up, cleaning of floors underneath is easier. Write BRADLEY WASHFOUNTAIN CO., MILWAUKEE 1, WIS.

Food Waste Disposers

305 Simplify refuse disposal in your community by recommending the installation of food waste disposers in schools, hospitals, restaurants and private homes. A dependable unit to recommend is the Waste King Imperial Hush which instantly and quietly gets rid of all garbage. Get the full story from WASTE KING CORP., 3300 E. 50th ST., LOS ANGELES 58, CALIF.

Cleaner Sweeping of City Streets

306 Here is a vacuumized street sweeper that sweeps extra clean, without dust nuisance. The Tennant "100" sweeps a 7 foot-4 inch path and operates at speeds to 15 mph. Its 9 foot-2 inch turning radius and short wheelbase make it ideal for sweeping downtown streets, alleys and other congested areas. No water is needed. For specifications, write G. H. TENNANT CO., 751A N. LILAC DR., MINNEAPOLIS 22, MINN.

Air Tools for Less

307 Now you can replace those big air compressors on your street construction and maintenance jobs with an efficient Smith 75P. This compact air compressor will supply enough power to operate one heavy-duty paving breaker, two medium-duty paving breakers, or one 45-pound rock drill. For all the facts, write GORDON SMITH & CO., INC., 425 COLLEGE ST., BOWLING GREEN, KY.

Municipal Fire Hose

308 Because Hewitt-Robins municipal fire hose combines maximum burst resistance, durability and flexibility with minimum elongation, it has become "standard equipment" in many communities throughout the country. The various types of fire hose are discussed in a new booklet. For your copy, write HEWITT-ROBINS, STAMFORD, CONN.

(See page 42 for more Bulletins)

Complete Line of Homelite Carryable Construction Equipment Now Available

Self-Priming Centrifugal Pumps . . . Carry these lightweight, dependable pumps anywhere. Non-clogging design . . . 28 foot suction lift . . . capacities up to 15,000 g.p.h. . . . sizes from 1½" to 3". Diaphragm pump also available.

Chain Saws For Every Job . . . Now you can choose from a full line of lightweight, powerful Homelite chain saws. From 3½ to 7 horsepower . . . 19 to 29 pounds. Brush cutting and clearing attachments are available to handle all your cutting jobs.

Carryable Gasoline Engine-Driven Generators . . . Lightweight Homelite generators can be carried and used anywhere to provide high-cycle and 115 volt power for your electric vibrators, tools, and floodlights. Complete range of sizes up to 5,000 watts . . . all standard voltages.

HOMELITE

a division of Textron Inc.

PORT CHESTER, NEW YORK

Use Northern Gravel for Rapid Sand Filter

Above is the Grand Rapids, Michigan Filtration Plant. W. L. Harris, the Water Plant Supervisor, says: "The Northern Gravel Co. has given us excellent service during the more than 20 years that it has supplied our filter media needs. Our laboratory tests have indicated that its products may be depended upon to meet our specifications."

Filter Sand Specifications

are carefully laid out. The Effective Sizes and Uniformity coefficients used by Consulting Engineers and also recommended by the American Water Works Association are the result of long years of research and experience.

The Northern Gravel Company is equipped to give you prompt shipment whether it be one bag or many carloads, exact to specifications. Filter sand can be furnished with any effective size between 0.35 MM and 1.20 MM.

Chemical Quality

of the filter sand is also important. It must be hard, not smooth, and free of soluble particles. This requires perfect washing and grading facilities. We have every modern device for washing, drying, screening and testing.

Filter Gravel

supporting the Filter Sand Bed, must be in turn, properly graded to sizes calculated to support the Filter Sand, and be relatively hard, round and resistant to solution.

Northern Gravel has no equal in facilities and our reserves of both sand and gravel are inexhaustible. Northern Gravel Company has been in business over 40 years. We guarantee uniformity of products and our records enable us to duplicate your requirements on short notice. Our location is central and we have commodity rates in every direction.

Northern Gravel Company

Box 307 **Muscatine, Iowa** Phone: AMherst 3-2711

Catalogs for You

Write directly to the manufacturers or use Post Card, page 54

One Man, One Refuse Truck Solve Mayor's Problem

309 *The Strange Case of the Melancholy Mayor* shows, in cartoon form, how one mayor solved a pressing municipal problem by putting the efficient Dempster-Dumpster system to work. This clean, effective refuse container system is easily handled by one man and one truck. Copies of the new booklet may be obtained from DEMPSTER BROTHERS, INC., DEPT. AC-1, KNOXVILLE, TENN.

Concrete Sawing and Joint Sealing

310 CLIPPER MFG. CO. will help your city select the right concrete saw and hot or cold contraction joint sealer for every application. A variety of Clipper saws are available, all designed for fast sawing at low cost. The company also offers a complete line of dependable blades. Write the manufacturer at 2800 WARWICK, KANSAS CITY 8, MO.

Portable Kettle Heats Asphalt, Tar

311 City work crews can speed the heating of tar, asphalt and pitch with these portable Flamegas kettle burners. The units operate on liquid or vapor propane (LP) gas, and are available with safety control and automatic temperature control. Get full facts from FLAMEGAS DETROIT CORP., 12901 AUBURN AVE., DETROIT 23, MICH.

Side Dump Bucket for Traxcavator

312 Here is a side dump bucket that is directly interchangeable with the Traxcavator's standard bucket—using the same pins, bolts and nuts. It is easy to operate, and dumps to the left as well as forward. For details on the Cat-built No. 955 and No. 933 Traxcavators with side dump bucket attachment, write CATERPILLAR TRACTOR CO., PEORIA, ILL.

Converts Empty Drums into Waste Receptacles

313 A Witt "Big Top" drum lid will convert any 55-gallon drum into a safe, sanitary waste receptacle. The self-closing lid enables you to dispose of refuse from any angle—front, sides or rear. Even large boxes and shovel-in trash will fit in the king-size flap opening. Get full details from THE WITT CORNICE CO., 2139 WINCHELL AVE., CINCINNATI, OHIO.

Improved Sewage-Treatment Equipment

314 "Grit Collecting and Grit Washing Equipment," *Book 2571*, contains design data on seven types of grit collectors, two grit washers, and the Tritor screen, a combination grit collector and mechanical screen for improved sewage treatment. The 28-page book can be permanently retained in the Link-Belt Sanitary Engineering Binder. For your copy, write LINK-BELT CO., DEPT. PR, PRUDENTIAL PLAZA, CHICAGO 1, ILL.

(See page 44 for more Bulletins)

Penetrates through rust
like coffee soaks into a sugar cube!

How much do you spend on removing rust before you paint? Why not coat right over the sound rusted metal with Rust-Oleum 769 Damp-Proof Red Primer after simple scraping and wire-brushing to remove rust scale and loose rust . . . saving time, money, and metal! Rust-Oleum's specially-processed fish oil vehicle penetrates* through rust to bare metal—while the surface film remains *tough, firm,* and *durable.* You cut costly surface preparations, you receive nearly 30% greater coverage depending upon the condition and porosity of the surface—and you receive the *maximum* in over-the-years protection!

Whatever your color choice may be—Rust-Oleum finish coatings include the color you want. They're manufactured under the same *exclusive* formulation as the Rust-Oleum Primer . . . they assure you of *greater* compatibility, *double* protection, and *lasting* beauty! The best way to see what Rust-Oleum will do for you is to actually try it yourself . . . around your plant or home.

See our complete catalog in Sweets, or send the coupon for a free Rust-Oleum Test Sample . . . one brushful means *more* than a thousand words. Prompt delivery from Industrial Distributor stocks.

*As proved by Battelle Memorial Institute Technologists in radioactive tracing studies.

RUST-OLEUM®

Distinctive as your own fingerprint. Accept no substitute.

STOPS RUST!®

ATTACH TO YOUR LETTERHEAD FOR FREE TEST SAMPLE!

RUST-OLEUM CORPORATION
2688 Oakton Street
Evanston, Illinois

- ☐ Free test sample with complete literature
- ☐ 30-page report on Rust-Oleum penetration
- ☐ Nearest source of supply

BRILLIANT PERFORMANCE

T-3 PRECISION THEODOLITE

Yes, brilliant performance based on inspired design and most scrupulous Swiss craftsmanship throughout the instrument and its accessories.

The Wild T-3 is an instrument that holds unchallenged supremacy in its class for accuracy, versatility, and maintenance-free reliability in a broad range of work requirements.

Complete data on the Wild T-3 will be sent on request.

Full Factory Services

WILD HEERBRUGG INSTRUMENTS, INC.

MAIN AT COVERT STREET PORT WASHINGTON, NEW YORK • PORT WASHINGTON 7-4843

Catalogs for You

Write directly to the manufacturers or use Post Card, page 54

Quick Death to Flies and Mosquitoes

315 One of the most efficient, economical units to use in ridding your community of flies and mosquitoes is a Buffalo Turbine Sprayer-Duster. This handy equipment permits Turbo-Spraying of liquids for larviciding or Turbo-Dusting for adult insect control. These methods can be carried out separately or simultaneously. Write BUFFALO TURBINE AGRICULTURAL EQUIPMENT CO., INC., 69 INDUSTRIAL ST., GOWANDA, N. Y.

Street Flusher Doubles as Snow Plow

316 Many cities use their Etnyre street flushers all year 'round—in winter plowing snow; in summer cleaning streets. The flushers offer high-pressure streams of water that clean streets up to 42 feet wide — thoroughly — even under parked cars. An attachment in front of the radiator grille adapts the unit to snow removal. Write E. D. ETNYRE & CO., OREGON, ILL.

For Fast, Clean Mowing at Parks, Airports

317 Cities can handle all their mowing needs with this John Deere-rotary mower combination. The tractor and matching-size rotary mower can be used for cutting and shredding grass, weeds and brush. Height of cut is hydraulically controlled "on the go." Write JOHN DEERE, INDUSTRIAL DIVISION, DEPT. D49F, MOLINE, ILL.

Makes Brush Disposal Fast and Easy

318 Municipal officials interested in the problem of brush disposal will get much valuable information from *Illustrated Specifications*, a new booklet from ASPLUNDH CHIPPER CO., 505 YORK RD., JENKINTOWN, PA. It describes the many advantages of using an Asplundh Chipper, the unit's basic parts, model specifications and special features. Copies on request.

Park, School, Playground and Pool Equipment

319 Designed in cooperation with authorities on play guidance and physical education, Game-time equipment is sturdy, safe and easy to install. It is especially recommended for city schools, parks, playground and swimming pools. For full facts, write GAME-TIME, INC., 206 JONESVILLE RD., LITCHFIELD, MICH.

Quick Repair of Steel Water Pipe

320 This new Dresser Style 75 "Permaclamp" provides a fast, simple, permanent way of repairing small leaks, cracks and splits in steel water pipe carrying pressures up to 1,200 psi. The "Permaclamp" is light in weight and easy to install. It eliminates service interruptions. Get full details from DRESSER MFG. DIV., DRESSER INDUSTRIES, INC., BRADFORD, PA.

(See page 47 for more Bulletins)

Never before has Chevy been so right for municipal hauling jobs!

Here's a truck specially designed to take to your kind of work like a duck takes to water! It's Chevrolet for '58 with new hustle, muscle and style that mean money in your pocket!

As you can see, Chevy's a honey of a truck this year, and that handsome, broad-shouldered '58 appearance only hints at the host of new and improved features that are ready to put you dollars ahead in the years to come. *Here's a truck ideally suited for haulers in your line of work.* Here's new styling to help build your business prestige every day in the week. And what workers these new heavyweights are! There's new power to whip mammoth hauls from the industry's newest engine, the 230-h.p. Workmaster V8* with revolutionary Wedge-Head design . . . or from the durable 175-h.p. heavy-duty Super Taskmaster V8 in Series 70 and 80 models. G.V.W.'s go all the way up to 36,000 lbs. (with Triple-Torque tandem) for big, profitable payloads. And these trucks come equipped with the toughest of big truck chassis components, either as standard equipment or as extra-cost options: cast spoke or disc wheels, air-hydraulic brakes, full-air brakes or big Hydrovac power brakes, and smooth Synchro-Mesh transmissions built to meet your needs precisely.

There are many such reasons why Chevy's never been *so right* for your work—many more reasons why you'll want to see your Chevrolet dealer soon! . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

**Featured in Series 90 and 100.*

CHEVROLET

NEW CHEVROLET TASK·FORCE 58 TRUCKS

AS SURE AS THIS SIGN SAYS . .

MIRO-FLEX MAKES THE BEST TRAFFIC CONTROL SIGNS

From ***STOP*** . . . to ***SLOW*** . . . to ***NO PARKING,*** Miro-Flex makes the finest traffic control signs available. The line is complete, too, with standard signs designed according to recommendations set forth in the *Manual on Uniform Traffic Control Devices* published by the Bureau of Public Roads, U. S. Department of Commerce. Of course you can get custom-designed signs as well. All Miro-Flex signs are quality made, embossed, and finished in materials to give you top value year after year.

WRITE FOR THE COMPLETE MIRO-FLEX SIGN CATALOG

WHY BUY AN EMBOSSED SIGN?

Miro-Flex embossed signs give three distinct advantages.

1. Greater legibility — the copy is in dimension.
2. Greater rigidity and strength.
3. Longer life.

THE **MIRO-FLEX** CO., INC.

1824 EAST SECOND STREET WICHITA 7, KANSAS

Catalogs for You

Write directly to the manufacturers or use Post Card, page 54

Improved Truck Crane

321 Capacity of the H-5 Hydrocrane has been boosted to 12 tons, according to BUCYRUS-ERIE CO., SOUTH MILWAUKEE, WIS. An extra hydraulic circuit provides faster speeds and better coordination of all crane movements. This improved truck crane has a new 12-volt system which assures quick starts in bad weather. Additional data will be furnished on request.

Sweeps Streets Cleaner

322 There is an A-W motor sweeper to fit every municipal budget: Model 40, 2 cubic yards, and the larger Model 60, 4 cubic yards plus. Both sweepers are available with a single gutter broom. A second broom can be added at low cost if necessary. For more information on motor sweepers, write AUSTIN-WESTERN, CONSTRUCTION MACHINERY DIVISION, AURORA, ILL.

Better Snow Removal

323 The new Frink Reversible Sno-Plow with trip blade plows left or right for in-city maneuverability. Too, it bulldozes straight ahead for clearing snow from intersections, bridges, parking lots and wide sidewalks. A power hydraulic mechanism, controlled by the cab lever, reverses the plow while raised or on the ground—even while plowing. Write FRINK-SNOW-PLOWS, CLAYTON, 1000 ISLANDS, N. Y.

Street-Name Signs of Porcelain Enamel

324 Here is a sturdy street-name sign designed for night and day visibility. The Ferro sign is constructed of porcelain enamel fused on quality steel. It is easy to read and economical to maintain. For an illustrated leaflet, write FERRO ENAMELING CO., 1100 FIFTY-SEVENTH AVE., OAKLAND 21, CALIF.

Reliable Water Storage

325 *Catalog H_2O* details and describes Hammond steel standpipes, steel reservoirs, elevated water tanks, water spheres, and filtration and purification units for general water supply and fire protection systems. For your copy, write HAMMOND IRON WORKS, WARREN, PA.

Dependable Water Pumps

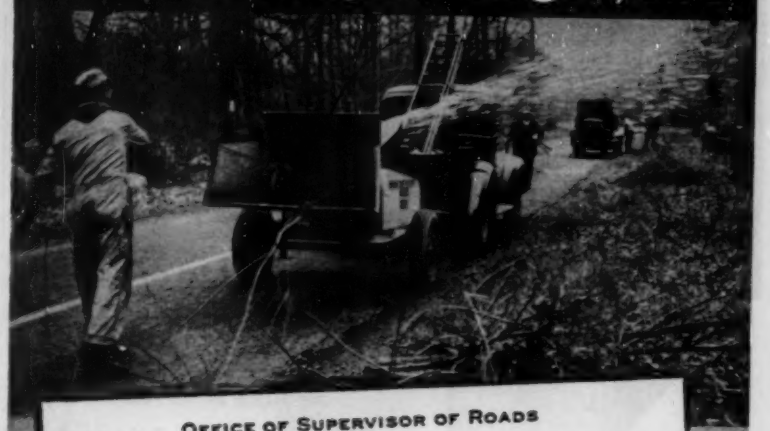
326 Whether your pumping is water supply or disposal, municipal or industrial, Fairbanks-Morse has the right size and type pump to meet your requirements. These efficient units are fully described in literature from FAIRBANKS, MORSE & CO., DEPT. AC-1, 600 S. MICHIGAN AVE., CHICAGO 5, ILL.

Assures the Voter Absolute Secrecy

327 With an Automatic Voting Machine, each voter casts and records his own vote in absolute secrecy. The advantages that machine voting will bring to your community are discussed in literature from AUTOMATIC VOTING MACHINE CORP., JAMESTOWN, N. Y.

(See page 48 for more Bulletins)

Read how FITCHBURG CHIPPER SOLVES BRUSH DISPOSAL County of Bergen, N. J.



OFFICE OF SUPERVISOR OF ROADS
COUNTY OF BERGEN

J. Ernest Thier, Supervisor
Diamond 2-1350

70 Zabriskie Street
Hackensack, N. J.

May 26, 1955

Mr. W. O. Forman, President,
Fitchburg Engineering Corp.,
Fitchburg, Massachusetts.

Dear Mr. Forman:

I thought I would take five minutes out to inform you about the efficient work your Fitchburg Chipper is doing in Bergen County.

As you probably well know, this Department maintains 450 miles of County road, much of it in the rural area, and formerly, when cutting brush, we had to use a large dump truck and three men to load it, and we were then faced with the problem of disposing of this brush, which was a job in itself.

Since purchasing the Fitchburg Chipper we only need one or two men and a pick-up truck to haul it, and we are not faced with the problem of disposing of this roadside brush, as the wood is now chipped along the roadside to form a soil-improving mulch.

Yours very truly,

J. E. Thier

Supervisor of Roads.

Free Booklet

Perhaps the savings in man hours and equipment mentioned by Mr. Thier in his letter may apply to your city, town or department.

For further information on how a Fitchburg Chipper can benefit your operation, send for FREE BOOKLET: *"Chip Dollars from Your Overhead."*

Address Dept. AC-28

FITCHBURG ENGINEERING CORPORATION
FITCHBURG, MASSACHUSETTS

RIGGS **Nuclear/Industrial Area-Monitoring Instruments**

RIGGS

Remote Area Gamma Monitor (GA-3 Series)

A completely self-contained, independent system with pressurized logarithmic response ionization chamber. Model GA-3B has Mercury battery supply for 4 months continuous operation. Model GA-3BA same as GA-3B but with AC power supply failsafe to DC. Model GA-3A available in AC power supply only.

RELAY RACK MOUNTING (WE)

The RIGGS four-gang rack unit may be any combination of the above GA-3 series remote area monitoring instruments. A separate power supply is not required. This eliminates the possibility of complete shutdown in event of power supply failure or during maintenance to the monitoring instruments.
The RIGGS system permits service to each individual unit, when necessary, without affecting continuous monitoring by the others.

General Features and Specifications

Any continuous combination 3-decade logarithmic ranges from .01 mr/hr to 100,000 R/hr.

Energy Dependence
Flat to within ±10% from 80 KV to 1.2 Mev.

Alarm Control System
Meter relays DC manual (optional). Alarm relay rated 115V AC 2 amps.

Recorder Output
10 mv operated directly from output of unit.

Electronic Calibration
Complete circuit check of all ranges both ends of scale.

RIGGS Log-Linear Gamma-Beta Portable Survey Meter (Model GB-1)

Log-linear pressurized ionization chamber portable survey meter. Fast response time 0 to 1 mr/hr linear and 2 to 3 decade ranges from 1 to 1,000 mr/hr, .1 to 100 R/hr. Mercury battery powered—300 hr. continuous operation, one year intermittent. Allows fast lab monitoring of low level Gamma-Beta radiation with the linear range and incorporates two higher log ranges for general survey work. Energy dependence—flat to within ±10% from 80 KV to 1.2 Mev.

Write for free illustrated technical literature and price lists.

Patented and Patents Pending.

RIGGS NUCLEONICS CO.

717 North Victory Boulevard, Burbank, California

Catalogs for You

Write directly to the manufacturers or use Post Card, page 54

Better Water Mains at Less Cost

328 Your community's water system can be designed more efficiently, installed at less cost, and operated more economically when it uses Johns-Manville Transite Pressure Pipe. This strong, corrosion-resistant pipe keeps maintenance costs low. For the whole story, get *Booklet TR-1904* from JOHNS-MANVILLE, BOX 14, NEW YORK 16, N. Y.

Truck Crane

329 The 25-ton "Michigan" Model T-24 truck crane is described and illustrated in this 24-page catalog. The crane is available with a variety of quick-change, front-end attachments for every municipal application. Write CONSTRUCTION MACHINERY DIV., CLARK EQUIPMENT CO., 2495 PIPESTONE RD., BENTON HARBOR, MICH.

Floodlighting for Every Municipal Need

330 Whether your city's floodlighting needs involve tunnels, bridges, airports, parking areas or swimming pools, you can depend on a Crouse-Hinds installation. Complete information on the various floodlight types is contained in literature from CROUSE-HINDS CO., SYRACUSE, N. Y.

Cuts Large-Size Pipe Quickly, Easily

331 Water-works men will appreciate the ease and speed with which the Ellis pipe cutter cuts large size pipe—in or out of a ditch. The heavy-duty unit is designed with drop-forged frame and links, and long-lasting cutter wheels. For *Circular and Price List No. 40AC*, write ELLIS & FORD MFG. CO., FERNDALE 20, MICH.

Dependable Water Meters

332 Badger disc, turbine and compound water meters are adaptable to all local needs and water conditions. They are designed for dependable, low-cost operation and minimum maintenance. For literature, write BADGER METER MFG. CO., 2371 NORTH 30th ST., MILWAUKEE 45, WIS.

For All-'Round Deodorizing

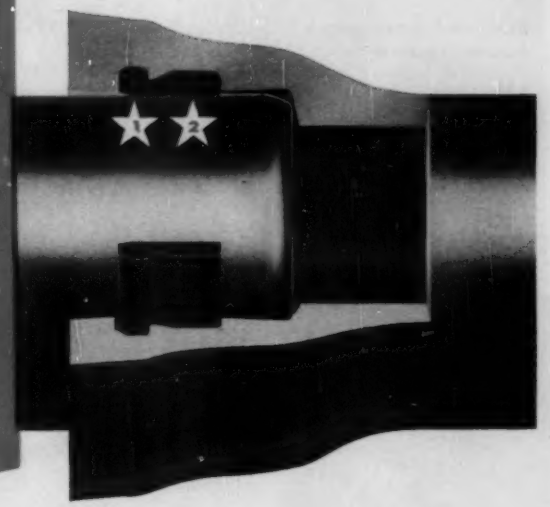
333 Use these fragrant deodorant discs in public washrooms, lockers, closets and garbage pails. Deodoroma Rounds are dense and durable, with a fragrance that lasts until the last particle has vaporized. For detailed literature, write THE C. B. DOLGE CO., WESTPORT, CONN.

Guide to Painting Swimming Pools

334 A long wearing swimming pool paint that won't blister is offered by KELLEY PAINT CO., 1445 S. 15th ST., LOUISVILLE, KY. All Olympic paints are non-fading and glare free, making them ideal for use in public pools. They are fast drying, easy to clean and slip resistant. A *Handy Pool Painting Guide* will be furnished on request.

(See page 50 for more Bulletins)

NEW! AMERICAN Fastite ★★® JOINT* CAST IRON PIPE



The superior double-sealing☆☆ single gasket type joint

Exclusive dual-density rubber gasket provides a long-life, leak-free cast iron pipe installation...

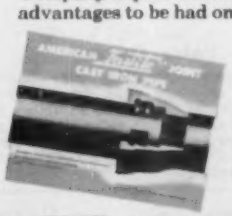
1. Hard rubber end provides a strong shoulder for self-centering and self-locking—a permanent seal against cold flow under pressure, fully protected against weathering and deterioration.
2. Softer large end for positive compression, liquid-tight joint sealing and easy assembly.

Tests prove either hard or soft rubber section *alone* provides a positive seal.

The American Fastite Joint* is an all-weather-laying joint. The exclusive gasket—available *only* with Fastite pipe—is self-centering, self-locking, and leak-proof. Increased internal pressures actually increase joint tightness whether pipe is laid in straight alignment or deflected.

Every feature of new American Fastite Joint* Cast Iron Pipe has been scientifically designed, laboratory and field tested, and manufactured to exact specifications with the objective of combining speed and ease of assembly with permanent, leak-free joints. Feature for feature, compare the new American Fastite Joint* with any other pipe joint now available. An American Cast Iron Pipe Company representative will be glad to tell you about the unique advantages to be had only in American Fastite Joint* Cast Iron Pipe.

*Patent applied for—Underwriters' Laboratories, Inc., approved.



FREE BOOKLET

Write for your free copy of a new booklet describing American Fastite Joint* Cast Iron Pipe. No obligation.

AMERICAN CAST IRON PIPE CO.
BIRMINGHAM 2, ALABAMA

SALES OFFICES

Kansas City • Denver
Minneapolis • Dallas
Pittsburgh • Orlando
New York • Cleveland
Los Angeles • Birmingham
San Francisco • Chicago

Catalogs for You

Write directly to the manufacturers or use Post Card, page 54

Fire and Emergency Alarm System

335 The Gamewell "Citizen's Emergency Center," is a completely integrated and independent fire and emergency alarm system providing fast, automatic signalling for fire alarms and multi-purpose voice for general emergencies. It can be added to any existing system or engineered as a new installation. Get all the facts from THE GAMEWELL CO., NEWTON UPPER FALLS 64, MASS.

Wheel-Type Trencher

336 The Model 170 "Trenchliner" is a wheel-type unit that digs a trench 5 feet-0 inches deep and up to 32 inches wide. It has a hydraulically-driven conveyor that gives belt speeds to 600 feet per minute, independent of digging speeds. Hydraulic tilt mast design holds the wheel in a vertical position. Get full details from PARSONS CO., NEWTON, IA.

Steel Water Pipe

337 Seven essential requirements for a water pipe line are met by efficient steel pipe. Steel pipe provides strength, durability and high carrying capacity, and is easy to install and maintain. Too, it is reliable, easily adapted, and offers "bottle-tight" joints. Get full facts from STEEL PLATE FABRICATORS ASSN., 105 W. MADISON ST., CHICAGO 2, ILL.

Keeps Streets Free of Ice and Snow

338 Winter streets and roads can be made safe faster with Columbia calcium chloride. This skid-proofing chemical melts ice and snow quickly; keeps traffic running smoothly. It is fully described in literature from COLUMBIA-SOUTHERN CHEMICAL CORP., ONE GATEWAY CENTER, PITTSBURGH 22, PA.

Coating Protects Concrete Sewer Pipe

339 A finished "in place" coating for concrete sewer pipe is discussed in this new booklet. "Teckote 100" can be applied quickly in a single operation, without heat. It has already proven successful on both sanitary and industrial projects. Write TECKOTE CORP., P. O. DRAWER 155, BIRMINGHAM, ALA.

Small Tractor Does Many Maintenance Jobs

340 Complete, year-round ground maintenance is easy and economical with a Gravely. This small tractor plus some 30 attachments will mow grass or weeds, mulch leaves, move snow or dirt, and sweep walks and drives. For a free booklet, *Power vs. Drudgery*, write GRAVELY TRACTORS, INC., BOX 73, DUNBAR, W. VA.

Simplifies Installation of Plastic Pipe, Cable

341 This automatic trenching machine is said to "saw through" hard ground, facilitating the installation of plastic pipe and cable. It is ideal for use in parks and lawns for installing sprinkler systems. The saw's steel teeth cut a sharp, clean trench 2¼ inches wide. Get full facts from COSOM ENGINEERING CORP., MINNEAPOLIS, MINN.

Lifts Snow Plows Automatically

342 Now you can lift or lower your snow plow automatically with Monarch power hydraulic controls. With these controls, one man operates the plow right from the truck or jeep cab. Snow removal is faster easier and more economical. Write MONARCH ROAD MACHINERY CO., 1331 MICHIGAN ST., N. E., GRAND RAPIDS 3, MICH.

Scoops and Shovels

343 Equip your municipal construction men with these long-wearing scoops and shovels constructed of Moly alloy steel, mill rolled to uniform gauge. These efficient tools are made by THE WOOD SHOVEL & TOOL CO., PIQUA, OHIO. Write for literature.

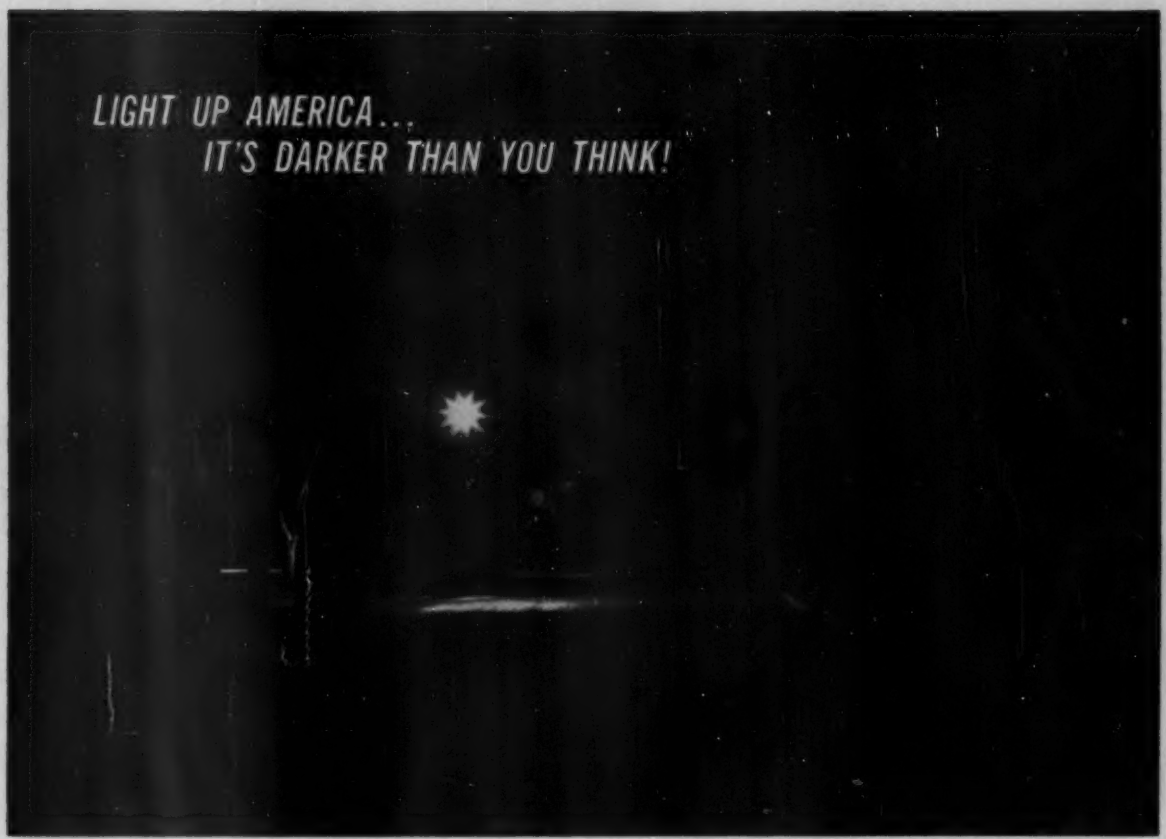
Adjustable Valve Boxes

344 Two piece adjustable valve boxes, sliding or screw type, for covering water valves 4 through 10 inches in diameter, and three piece valve boxes supplied with separate bases, are available from ALABAMA PIPE CO., ANNISTON, ALA. Write for literature.

Efficient Water Storage

345 Solve your municipalities' water storage problems with Cole elevated tanks. Tank capacities range from 5,000 to 2,000,000 gallons. The complete Cole line is described in *Tank Talks*, an informative booklet from the R. D. COLE MFG. CO., NEWNAN, GA.

(See page 56 for more Bulletins)



Someone will get credit for lighting this street. Who will it be?

Pretty soon something's bound to happen on a dark street like this, and when it does, someone will spearhead a drive for good public lighting. He'll get what he's after, too, because who casts a vote for darkness on his community's streets?

And when the lights come on, business picks up, accident rates drop, there's less crime. Streets *look* safe and prosperous—and they *are*.

The cost? Good street lighting is the least expensive capital improvement you could sponsor.

"Out of Darkness" a new, dramatic film story of how one community met its street-lighting problems, is now available to civic groups, community service organizations, etc. This 16-mm, sound, black-and-white movie runs 26 minutes. Borrow a print of "Out of Darkness" from your nearest G-E Apparatus Sales Office.

Section A455-10
Outdoor Lighting Department,
General Electric Company, Schenectady 5, N. Y.

Please send me a free copy of the 16-page bulletin, "Residential Street Lighting," GEA-6316.

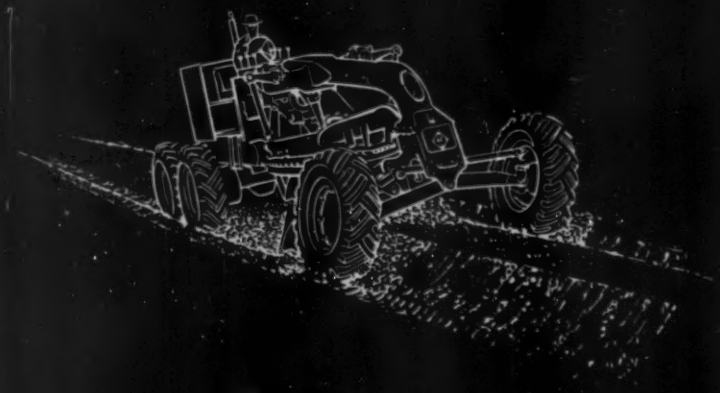
Name_____

Street_____

City and State_____

Progress Is Our Most Important Product

GENERAL ELECTRIC

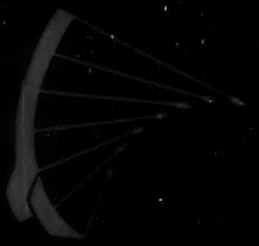


the design of the blade makes

ALLIS-CHALMERS engineering in action

. . . an Allis-Chalmers motor grader exclusive

THE ROLL-AWAY MOLDBOARD MOVES BIG LOADS FASTER



Each portion of blade forces material toward a *different* point. Packing is eliminated. Pressure and friction against blade decreases toward top of blade — no wasted power.

ORDINARY MOLDBOARD

Each portion of blade forces material toward a *fixed* point. Packing action causes high friction over entire blade — wastes power.

ALLIS-CHALMERS, CONSTRUCTION MACHINERY DIVISION, MILWAUKEE 1, WISCONSIN

the difference

ROLL-AWAY

ROLL-AWAY is an Allis-Chalmers trademark

Engineers Choose

TYLOX *Rubber* PIPE GASKETS

to make WATER-TIGHT JOINTS • REDUCE PIPE-LAYING COSTS

on Millcreek Township Sewer Project

PROJECT: Sewers to serve 42 residences and 10 commercial buildings of Tracydale Development Company Project in Millcreek Township, Erie, Pa.

CONTRACTOR: Lee Taylor, General Contractor, Erie, Pa.

ENGINEERS: Owen Richardson, Township Engineer, and Wallace DeArment, Consultant.

PIPE: 6" and 8" vitrified Clay pipe with pre-assembled TYLOX Rubber Joints, manufactured by Universal Sewer Pipe Corporation, Cleveland, Ohio.

Providing sewer facilities for a large housing project posed tough problems for the Tracydale Development Company. Thousands of feet of mains and laterals had to be laid in a stratum of water-bearing sand. Trenching costs would be terrific, not to mention the man hours required to couple the line in flooded trenches. A *fast* way to make *leak-proof* pipe joints was needed.

Millcreek Township engineers had the answer . . . Their specification for TYLOX RUBBER JOINTS not only offset high excavating costs with fast pipe-laying, but kept infiltration far below the strict permissibles. The engineers knew, too, that TYLOX Gaskets would keep *future* costs down . . . with a root-proof, sediment-proof compression joint that would not have to be "dug up" in a few years for repairs.

Specify TYLOX RUBBER GASKETS to assure fast-working, leak-proof and non-deteriorating joints for your pipe jobs. Write for more TYLOX engineering details and case histories.

HAMILTON KENT MANUFACTURING COMPANY

KENT, OHIO

427 West Grant St. ORchard 3-9555

5050

To THE AMERICAN CITY's Catalog Supply Department:
Please send me further information on products described in "Purchasing News" section beginning

Postage Will be Paid by Addressee

No Postage Stamp Necessary If Mailed in the United States

BUSINESS REPLY CARD
FIRST CLASS PERMIT No. 281, SEC. 34.9 P. L. & R., NEW YORK, N. Y.

THE AMERICAN CITY MAGAZINE

470 FOURTH AVENUE

NEW YORK 16, N. Y.

STUCK?

If you need information on any type of municipal service or equipment, these reply cards will get action in a hurry.

To THE AMERICAN CITY's Catalog Supply Department:
Please send literature on items numbered as follows, starting on Page 36

275	285	295	305	315	325	335	345	355	365	375	386
276	286	296	306	316	326	336	346	356	366	376	387
277	287	297	307	317	327	337	347	357	367	377	388
278	288	298	308	318	328	338	348	358	368	378	389
279	289	299	309	319	329	339	349	359	369	379	390
280	290	300	310	320	330	340	350	360	370	380	391
281	291	301	311	321	331	341	351	361	371	381	392
282	292	302	312	322	332	342	352	362	372	382	393
283	293	303	313	323	333	343	353	363	373	383	394
284	294	304	314	324	334	344	354	364	374	384	395
										385	396

I would also like to receive manufacturers' booklets on.....

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Name: (Please Print).....

Title:.....

Address.....

..... 2-58

A Listing of Your Business Connection is Important

To THE AMERICAN CITY's Catalog Supply Department:
Please send me further information on products described in "Purchasing News" section beginning on page 207, as circled below:

936	941	946	951	956	961	966	971
937	942	947	952	957	962	967	972
938	943	948	953	958	963	968	973
939	944	949	954	959	964	969	974
940	945	950	955	960	965	970	975

I would also like to receive manufacturers' booklets on.....

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Name: (Please Print).....

Title:.....

Address:.....

.....2-58

A Listing of Your Business Connection is Important

HERE'S A LIFT

Postage Will be Paid by Addressee

No Postage Stamp Necessary If Mailed in the United States

BUSINESS REPLY CARD
FIRST CLASS PERMIT No. 281, SEC. 34.9 P. L. & R., NEW YORK, N. Y.

THE AMERICAN CITY MAGAZINE

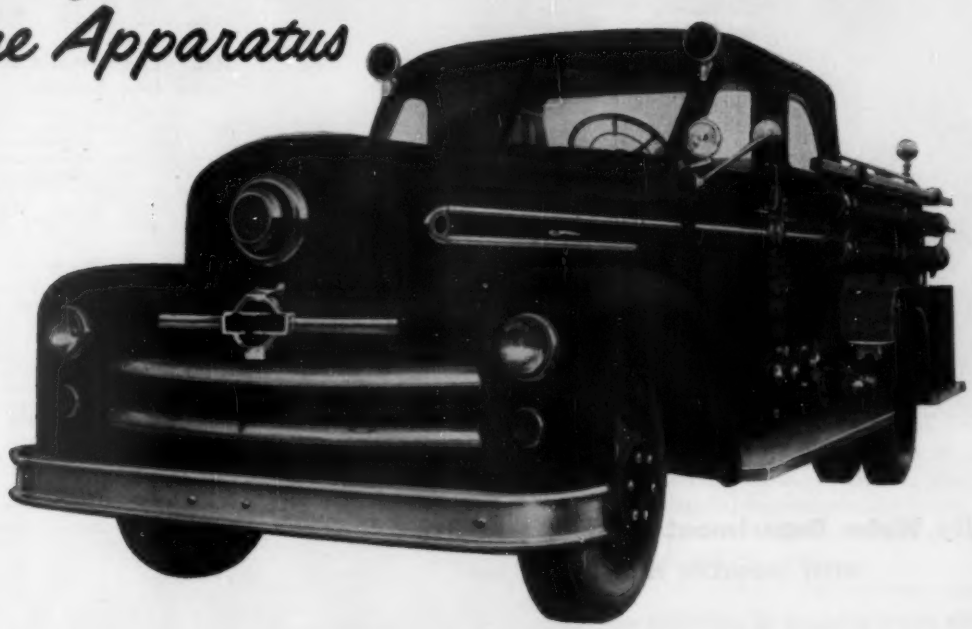
470 FOURTH AVENUE

NEW YORK 16, N. Y.

Save time and effort by using these reply cards when you want additional information on any product or service mentioned or advertised in this issue.

SEAGRAVE *Higher Quality!*

Your first consideration in buying Fire Apparatus



Fire apparatus is the most important investment your city can make. The lives and property of an entire community depend upon its efficient operation in times of the greatest emergencies.

There is a vast difference in the way fire apparatus is built . . . therefore it is vital to consider the reputation of the manufacturer, his years in the fire apparatus industry, his contributions in engineering and developments that have made the job of fire fighting so much safer and more efficient.

Here at Seagrave we have been building quality fire apparatus for seventy-six years. We are the recognized leaders in the quality field and we intend to maintain this leadership. Our experienced engineers will continue to design and build the finest in bodies, the strongest frames, the powerful engines, the efficient pumps, the safest ladders and all other principal quality parts for Seagrave Fire Apparatus.

Yes, you may pay a bit more for a Seagrave but you get MUCH MORE in quality engineering, quality construction and years of trouble-free, dependable service . . . and that's where Seagrave costs less, saves you money—

SEAGRAVE—The Greatest Name in Fire Apparatus.

MAIL THIS COUPON

THE SEAGRAVE CORPORATION—Columbus 7, Ohio A.C 2-58
Please mail complete information on:
☐ SEAGRAVE PUMPING ENGINES ☐ SEAGRAVE AERIAL LADDER TRUCKS
or ☐ .....
(Use above line for any special information you desire concerning Seagrave Fire Apparatus)
Name ..... Title .....
Street Address .....
City ..... State .....

In Canada—KING-SEAGRAVE—Woodstock, Ont.

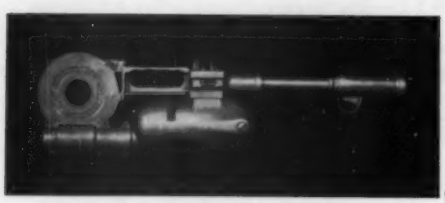
Lawco Jr. Portable Pipe Threader drives tapping machine for making service connections at Cedar Rapids.

City Water Department mechanizes service taps with versatile new power tool

With over a thousand ¾ and 1-inch water service taps on mains each year—by hand—City Water Works Superintendent, George S. Lee, Cedar Rapids, Iowa, had a manpower problem.

Constant pulling on the ratchet handle was taking its toll in fatigue and backache. Keeping up with the demand was exhausting. Then, Sidney Peterson, the firm's Construction Superintendent decided to adapt the Lawco Jr. Portable Pipe Threader to operate the tapping machine electrically.

The result was welcome relief for the tappers. Now they make consecutive taps without undue tiredness. On the job since the summer of 1955, this tool has been free of difficulties to date, either mechanical defects or operational problems. Mr. Lee is pleased too, with the greatly extended life of the drills and taps when used with this device.



Lawco Jr. threads pipe from ¼" to 6", digs holes, works as a hoist. Weighs only 20 pounds.

If your tappers are still operating manually, better get acquainted with the Lawco Jr. Portable Pipe Threader. Write us for literature or ask our salesman to call.

VELOCITY POWER TOOL COMPANY
201 North Braddock Avenue, Pittsburgh 8, Pa.

Catalogs for You

Write directly to the manufacturers or use Post Card, page 54

Faster Garbage Collection at Lower Cost

346 Hydro E-Z Pack garbage and refuse bodies are designed to carry a bigger pay-load, require fewer man-hours per ton. These efficient units handle all kinds of refuse safely and quietly, eliminate "dripping and scattering." The body can be loaded from both sides at once. For further details, write HYDRO E-Z PACK DIV., HERCULES GALION PRODUCTS, INC., GALION, OHIO.

Make Your Own Concrete Meter Box Barrels

347 Water departments can make their own barrels for outside meter settings with Ford Singl-use Fiberforms. Fiberforms are inexpensive and easy to use. Forms are made for 15-, 18- and 20-inch inside-diameter barrels, and in lengths of 15, 18 and 24 inches. Write THE FORD METER BOX CO., INC., WABASH, IND.

Crawler Tractors

348 In its 1958 crawler tractor line, THE OLIVER CORP. will cover the municipal construction front with more sizes and types—from the improved 28 net hp OC-4 to the work-speeding OC-18 with 161 net hp. The OC-4 will be available with a new trencher attachment. For further details on these and other Oliver units, write the company at 400 W. MADISON ST., CHICAGO 6, ILL.

Simplify Municipal Record Keeping

349 Complete flexibility makes it easy to adapt Acme visual control panels to your city's record requirements. The wide variety of styles and colors of signals plus colored inserts printed or typed with the exact information you desire, give you practically unlimited signalling and charting possibilities. Get full details from ACME VISIBLE RECORDS, INC., DEPT. F-158, CORZET, VA.

New Concrete Mixers for General Maintenance

350 Koehring-Johnson spindle type tilting mixers are available in 2-, 4-, 6- and 7½-cubic-yard sizes. Each unit features a simplified design, light weight and low price. Get the full story on these efficient concrete mixers from C. S. JOHNSON CO., CHAMPAIGN, ILL.

Dependable Fire Apparatus

351 Whether your municipal fire department is interested in pumping engines or aerial ladder trucks, you can get low-cost, dependable equipment from THE SEAGRAVE CORP. For complete information on Seagrave's efficient line of fire apparatus, write the company at COLUMBUS 7, OHIO.

New Backhoe Digs Faster, Easier

352 The many features which contribute to the digging speed and durability of the new Model "F" Power Digger are described in *Bulletin No. 1070.* This powerful machine is said to excavate faster than ordinary backhoes. Write SHERMAN PRODUCTS, INC., ROYAL OAK, MICH.

(See page 59 for more Bulletins)

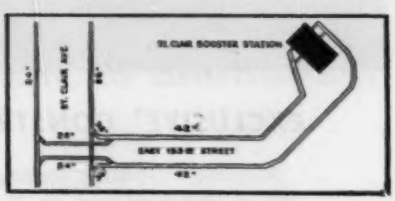
73 Specials Made This Job Look Tough

This job for the City of Cleveland used 73 specials and fittings, with the longest run being only 230 feet. It's the toughest kind of a city installation.

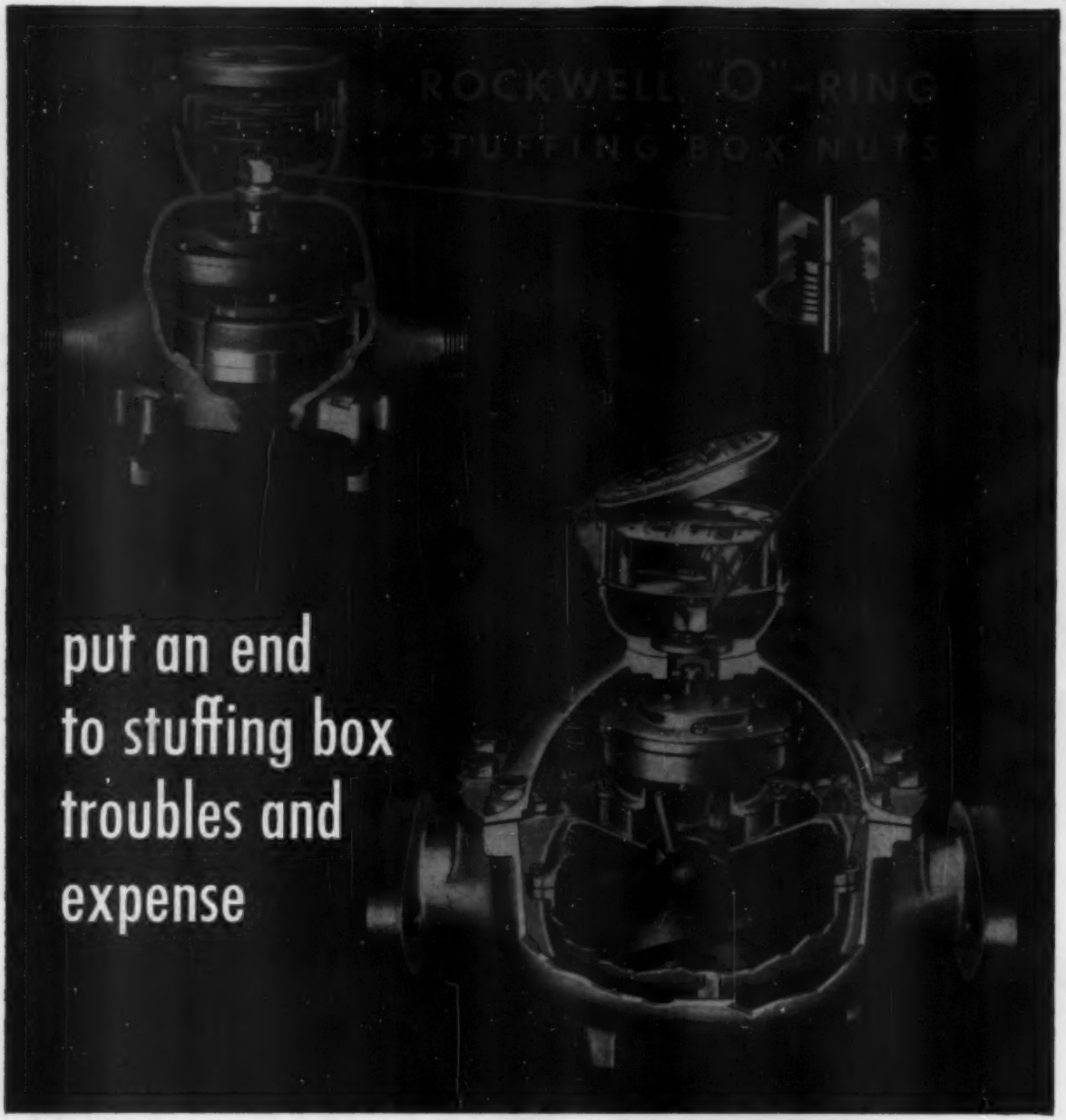
However, Henry B. Sherman, subcontractor, reports that the job went smoothly and according to schedule. Prestressed concrete pipe was used, and it turned out to be a good choice. Regular lengths of concrete pipe, short lengths and specials are all designed for the easiest possible installation.

The project ties a new booster station into two distribution lines (one 36″ and one 24″) running along St. Clair Avenue. Within a 100-foot circle, these specials were used: 6 closures, 6 wyes, 6 butterfly valves, 10 elbows, plus flange adapters, short lengths and bevels. Heavy traffic and close 7-inch clearances complicated the work.

Havens and Emerson were consulting engineers on the job. All the pipe and specials were manufactured in the Dayton, Ohio plant of Price Brothers Company. For information on concrete pressure pipe, write Price Brothers at Dayton, Ohio or Hattiesburg, Miss.



Price Brothers



put an end to stuffing box troubles and expense

EXCLUSIVE* CONSTRUCTION ELIMINATES LEAKS, BINDS

Rockwell "O"-Ring stuffing box nuts provide a *leak tight seal* on the register drive spindle. This seal is accomplished with *very slight compression*, so friction becomes negligible and meter performance is actually improved. This construction is *foolproof*, since the "O"-Ring nut can be force tightened with a wrench without applying any additional compression.

Seven years of field experience have proved the success of this *exclusive* Rockwell development—now furnished as standard construction on Rockwell meters at no additional cost. And Rockwell "O"-Ring stuffing box nuts are available as interchangeable replacement parts for earlier model Rockwell meters. Ask your Rockwell representative to demonstrate. Rockwell Manufacturing Company, Pittsburgh 8, Pennsylvania.

*Patented

WATER METERS
another fine product by
ROCKWELL

Catalogs for You

Catalogs for You

Write directly to the manufacturers or use Post Card, page 54

How Busy is Your Equipment?

353 For every piece of equipment that moves during work—trucks, front-end loaders, ready mixer and graders—bolt on a tamperproof Servis Recorder and it will accurately chart busy time and all stops or delays. The unit writes its own permanent record for daily, weekly or for 3-day periods. For an *Off-the-Highway Bulletin*, write THE SERVICE RECORDER CO., 10137 ROCKWELL AVE., CLEVELAND 14, OHIO.

City Budgeting Made Easy

354 The business of telling what the money a city appropriates is actually going to do isn't really so difficult when you use Burroughs Sensimatic Control-Input equipment. This efficient equipment wraps up your performance budgeting and, as a by-product, automatically provides punched tape or punched card records. Get the whole story from BURROUGHS DIV., BURROUGHS CORP., DETROIT 32, MICH.

Handles the Toughest Earthmoving Jobs

355 International's TD-24 torque converter or gear drive crawler tractor is described in this new 20-page catalog. The unit is equipped with a 4-cycle, 6-cylinder, 202-hp diesel engine, enabling it to handle the most difficult earthmoving jobs. For your copy of *Catalog CR-634-G*, write CONSUMER RELATIONS DEPT., INTERNATIONAL HARVESTER CO., 180 N. MICHIGAN AVE., CHICAGO 1, ILL.

Provides Push-Button Pavement Marking

356 Now you can handle centerlines and other pavement marking jobs quickly and economically with Wald's new "Town & Country." This truck-built striper is designed for faster, cleaner safety-marking and speedy hops between locations. All equipment works automatically. For additional data, write WALD INDUSTRIES, INC., HUNTINGTON, PA.

A Good Traffic Paint Dries Quickly

357 That's why an increasing number of communities are choosing a Parlon-based paint for traffic lines. Formulations based on Parlon chlorinated rubber dry quickly and last longer. For all the facts, write HERCULES POWDER CO., 900 MARKET ST., WILMINGTON 99, DEL.

Lay Pipe Easier

358 You don't have to disrupt traffic to lay water and gas mains underground. A Prewitt horizontal digger will drill under highways and sidewalks for low-cost, high-speed pipe installation. The digger drills up to 48 feet in all types of soil. For setting poles, the company's industrial digger is recommended. Write J. R. PREWITT AND SONS, INC., DEPT. 501, PLEASANT HILL, MO.

Better Parking Meters

359 Rockwell's Single and Dubl-Dual parking meters are said to work better, stay in service longer, and cost less to use. They are fully described in literature from ROCKWELL MFG. CO., PITTSBURGH 8, PA.

Motor Graders

360 Allis-Chalmers motor graders are constructed with a roll-away moldboard designed to move big loads faster. Each portion of the blade forces material toward a different point. Packing is eliminated, and there is no wasted power. Get all the facts from ALLIS-CHALMERS, CONSTRUCTION MACHINERY DIV., MILWAUKEE 1, WIS.

Ratchet Threader

361 One of the handiest pipe tools available is this drop head ratchet threader. When dies are to be changed, you simply pull on the pawl and the die slips out. The unit is easy to operate in close corners. It has an attractive, rust-resistant finish. Write THE TOLEDO PIPE THREADING MACHINE CO., TOLEDO 4, OHIO.

Asphalt Plants

362 These two new continuous asphalt plants will handle every type mix—for any street or road construction job. The Model 847 is designed for high-capacity operation; the Model 848-A for extra high capacity. Both models are easily erected. Write BARBER-GREENE, AURORA, ILL.

For Cleaner Sewers

363 Specify an O'Brien Sewerking. This one-piece flexible steel cable—handled completely by power—is said to be the most efficient method of cleaning sewers available. For the complete *Sewerking Power Story*, write O'BRIEN MFG. CORP., 5632 NORTHWEST HWY., CHICAGO 30, ILL.

(See page 60 for more Bulletins)

Sodium Silicofluoride and Sodium Fluoride are the recommended chemicals

OLIN MATHIESON CHEMICAL CORPORATION
BLOCKSON

...and Blockson, the largest producer of Sodium Silicofluoride, and a major producer of Sodium Fluoride, is your assured source of supply.

INQUIRIES for technical bulletins, contract proposal, etc. *ARE INVITED.*

BLOCKSON CHEMICAL COMPANY • Joliet, Illinois
Division of Olin Mathieson Chemical Corporation

WAREHOUSE STOCKS AT ALL BLOCKSON DISTRIBUTORS

Engineering PLUS...

Keeps Tank Interiors Corrosion Free at a Practical Cost

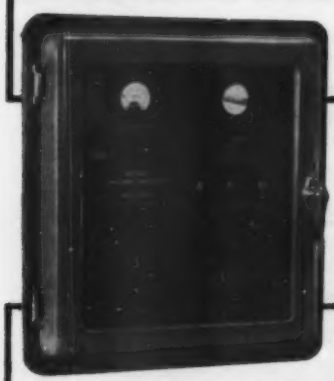
One of the five municipal tanks serving the City of Jacksonville, Fla. which has been cathodically protected by E.R.P. system since 1942.

The City of Jacksonville, Fla. has relied on engineering plus from Electro Rust-Proofing Corp. since 1942 to protect water storage tanks serving the city. Since installation of cathodic protection, tanks have been virtually corrosion free on the under water surfaces and maintenance costs have been reduced to a minimum.

E.R.P. engineering plus means cathodic protection systems
designed to meet your needs...
maintained to your benefit...
priced to your profit...

E.R.P. provides engineering plus to meet any corrosion problem of submerged or buried metals. For full information on cathodic protection for your water storage tanks, water treatment structures and pipelines, write for bulletin E-42.

ELECTRO RUST-PROOFING CORP.
A SUBSIDIARY OF WALLACE & TIERNAN INC.
30 MAIN STREET, BELLEVILLE 9, NEW JERSEY
CABLE: ELECTRO, NEWARK, N. J.



HOW TO DETECT 3 PARTS CHLORINE IN A MILLION PARTS AIR

New W&T Solvay Chlorine Detector*

detects as little as 3 p.p.m. chlorine in a continuous air-stream sample. Automatically sets off alarm at higher concentrations.

Write for Publication 50.118

WALLACE & TIERNAN
INCORPORATED
25 MAIN ST., BELLEVILLE 9, N. J.

I-55 *Manufactured under patent license from Solvay Process Div., Allied Chemical & Dye Corp.

Catalogs for You

Write directly to the manufacturers or use Post Card, page 54

Make Your Own Hot Mix Asphalt

364 With the new White L-20 asphalt plant. The unit will supply blacktop for suburban streets, driveways, parking lots, school yards, or state highway maintenance. It produces any type mix—hot, RC, MC, SC and emulsified for top course, base course, one course, or patch. Write WHITE MFG. CO., ELKHART 1, IND.

Fast, Dependable Chlorination

365 Wherever germs, fungi or bacteria threaten—in pipelines, reservoirs, wells, filtration equipment, as well as during emergency flood conditions, you get fast, dependable chlorination with HTH. HTH, containing 70% available chlorine, is made in granular and tablet form. Secure details from OLIN MATHIESON CHEMICAL CORP., INDUSTRIAL CHEMICALS DIV., BALTIMORE 3, MD.

Electric Photometer for Water Analysis

366 Adaptable for use in water analysis, the Klett Summerson electric photometer can be used for any determination in which color or turbidity can be developed in proportion to the substance to be determined. Get full details from KLETT MFG. CO., 179 E. 87th ST., NEW YORK, N. Y.

Asphalt Pavement

367 Whatever your city's paving problem—whether it involves a street, highway, airport or parking area—there is a heavy-duty, intermediate or low-cost type of Texaco asphalt construction suited to your requirements. Helpful information on methods and materials recommended for all of these asphalt types is supplied in two free booklets. Write THE TEXAS CO., ASPHALT SALES DIV., 135 E. 42nd ST., NEW YORK 17, N. Y.

Drills Holes Through Reinforced Concrete

368 Now you can drill holes through thick reinforced concrete floors and walls quickly and easily with a Truco Diamond Drilling Machine. Get full details on this effective machine from TRUCO SWIVEL DIVISION, WHEEL TRUEING TOOL CO., 28-3200 W. DAVISON AVE., DETROIT 38, MICH.

Heavy-Duty Sewage Pump

369 This sewage and sump pump, with non-clog impeller, effectively handles large diameter solids, rags and stringy material which are washed into the sewage pit. The screenless units are easily installed with one piping connection. Get *Bulletin C-900* from WEIL PUMP CO., 1518A N. FREMONT ST., CHICAGO 22, ILL.

Tax Equalization Appraisals

370 THE J. M. CLEMINSHAW CO. specializes in the revaluation of municipalities and rural property for local tax equalization purposes. For a brochure and client list, write the company at 1601 BROOKPARK RD., CLEVELAND 9, OHIO.

(See page 62 for more Bulletins)

Catalogs for You

Cuts Copying and Filing Costs

371 Cities can copy office records for a

Efficient Backhoe

374 You can operate your Davis backhoe in places inaccessible to other ma-

WORTHINGTON DEALERS

★ Every one of the Worthington Dealers listed below is a *demonstrating dealer*. He handles the most complete line of large area grass maintenance equipment in the world. In this extensive line of tractors and gang mowers there's a model that's just the right answer to your problem. Ask the Worthington Dealer in your area for a "no obligation" demonstration today. See for yourself how Worthington can handle your grass maintenance problem ... faster ... cheaper. And — all these Worthington Dealers are equipped to handle your service problems quickly and efficiently.

Akron (Cuyahoga Falls), Ohio
Jacobsen Power Lawn Mower
Albany, N. Y.
Wacksman Lawn & Golf Equip.
Asheville, N. C., Henry Westall Co.
Atlanta, Ga., Evans Implement Co.

Bethesda, Md., G. L. Cornell Co.
Birmingham, Ala., Yeilding Brothers Co.
Birmingham, Mich., Miller's Lawn & Garden
Boise, Idaho, Tuck's Lawn Service
Boston (Danvers), Mass., Sawtelle Brothers
Buffalo, N. Y., Albert Kassman

Chilton, Wisc.
Horst Engineering & Equip. Sales
Cincinnati, Ohio, Turf Equipment, Inc.
Cleveland, Ohio
Jacobsen Power Lawn Mower
Columbus, Ohio, Jacobsen Power Mower Co.

Dallas, Texas, Colonial Motors
Decatur, Illinois, H. A. Kuhle Company
Denver, Colo., Carson Brothers
Des Moines, Iowa
Globe Machinery & Supply Co.

Eau Claire, Mich., Ferguson & Sons
El Paso, Texas, Allen Arms & Cycle Co.

Fargo, No. Dakota, Broadway Hardware Co.
Fort Wayne, Indiana, The Garden Gate

Gary, Indiana
Steel City Lawn & Garden Equipment Co.
Grays Lake, Ill., Frandsen Brothers
Great Falls, Mont., Lease's Garden Center

Houston, Texas, Watson Distributing Co.

Indianapolis, Ind., Riley's Lawn & Golf

Jackson, Tenn., Wilson's Equipment Co.
Jacksonville, Fla., Lawn & Golf Supply Co.
Janesville, Wisconsin
Wisconsin Turf Equipment Co.

Kansas City, Mo.
Robison's Lawn & Golf Supply
Keokuk, Iowa, Leon Short & Son

Lake Worth, Fla., Barco, Inc.
Little Rock, Ark., Capital Cycle Co.
Los Angeles (Vernon), Calif., B. Hayman Co.
Louisville, Ky., Jack Dayton & Son
Lubbock, Texas, Lawn Service & Supply Co.

Mamaroneck, N. Y.
Sawtelle Equipment Co. Inc.
Matawan, N. J., M. S. Whaley Co.
Memphis, Tenn., Weakley Equipment Co. Inc.
Milwaukee, Wisc., Aring Equipment Co. Inc.
Milwaukee, Wisc., Golf & Garden Equipment

Nashville, Tenn., Tanksley's Sales & Service
New Hyde Park, Long Island, N. Y.
Malvese Mowers & Equip.
New Orleans, La.
Southern Specialty Sales Co.

Oklahoma City, Okla., Paul Blakeney
Orland Park, Ill., Illinois Lawn Equipment

Philadelphia, Pa., Lawn & Golf Supply Co.
Phoenix, Ariz., Lawn & Garden Supply Co.
Pittsburgh, Pa., Krigger & Co. Inc.
Pittsfield, Mass., The Magovern Co.
Portland, Oregon, E. P. Baltz Equip. Co.
Providence, R. I., Woodworth Bradley, Inc.

Racine, Wisc., Einer T. Brown
Rochester, N. Y., Grass Cutting Equip. Co.

St. Louis, Mo., C. G. Kruckemeyer Mach.
St. Paul, Minn., R. L. Gould & Co.
Salt Lake City, Utah, Boyd Martin Company
San Antonio, Texas, Catto & Putty
San Francisco, Calif., H. V. Carter Co., Inc.
Seattle, Washington, Ivan W. Lee & Sons
Seattle, Washington
Northwest Mower & Marine
So. Glastonbury, Conn., C. M. Jenkins
Springfield, Mass.
The Magovern Company
Stroudsburg, Pa., George Sebring & Son

Tampa, Florida
Crenshaw-McMichael Seed Co.
Toledo, Ohio, Barton Equipment Co.

West Sioux Falls, S. D., Dakota Turf Supply
Wethersfield, Conn., The Magovern Co.

CANADA

Calgary, Alberta
Calgary Farm Machinery, Ltd.
Charlottetown, P.E.I., W. R. Jenkins
Edmonton, Alberta, Rototiller Sales & Service
Fredericktон, New Brunswick
Foulis Engineering Sales Ltd.
Halifax, Nova Scotia
Foulis Engineering Sales Ltd.
London, Ontario
Spramator Sales & Equip. Ltd.
Montreal, Que.
Spramotor Sales & Equip. Ltd.
c/o Webb Seed Co.
New Westminster, B. C.
Rotary Equipment Sales Ltd.
Regina, Saskatchewan, Elmer's Machine Shop
Toronto, Ont., Spramotor Sales & Equip. Ltd.
Winnipeg, Manitoba, C. C. King & Co., Ltd.

MEXICO

Guadalajara, Jal., Mexico, Carlos B. Smith

HAWAII

Honolulu, Hawaii, Lewers & Cooke, Ltd.

EUROPE

Oslo, Norway, A/S Eik & Hauskens
Stockholm K. Sweden
Vihelmson & Co. A. C.
Wettingen A/G, Switzerland, Otto Richei

SO. AMERICA

Bogota, Colombia, S. A.
Fernando Escobar, U.

WORTHINGTON JACOBSEN JOHNSTON

WORTHINGTON
MOWER COMPANY
STROUDSBURG • PENNSYLVANIA
Subsidiary of Jacobsen Manufacturing Company

8-085

Catalogs for You

Write directly to the manufacturers or use Post Card, page 54

Provides Automatic Off-Street Parking

371 Low in first cost and operating without attendants 24 hours a day, these dependable controlled parking systems offer wide flexibility of controls with a choice of card-keys, coins, tokens or any combination of these. For a full description of automatic off-street parking with Parco, write PARCO, DIVISION of JOHNSON FARE BOX CO., 4619 N. RAVENSWOOD AVE., CHICAGO 40, ILL.

Cuts Copying and Filing Costs

372 Cities can copy office records for a fraction of a cent apiece with a Recordak microfilmer. Moreover, these microfilm copies, inserted in acetate jackets, can be filed at the fingertips using minimum space. For details on the uses of Recordak microfilming and acetate jackets, write RECORDAK CORP., DEPT. Y1, 415 MADISON AVE., NEW YORK 17, N. Y.

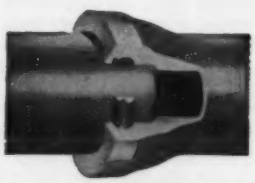
Repairs Cost Less with Gunite

373 Repairing, constructing and lining concrete reservoirs, dams, filter plants, tanks, and sewage disposal plants is easy and economical the modern Gunite way. For a 48-page booklet giving full facts on Gunite, write PRESSURE CONCRETE CO., 315 S. COURT ST., FLORENCE, ALA.

"I jist sez:
'Boss, we done run out of TYTON'—
and he hit the
ROOF!"

McWANE® TYTON JOINT
cast iron pipe

No wonder pipe laying crews like McWane Tyton Joint pipe—it's so easy to lay. Just push the joint together. The only joint accessory is the gasket. Eliminates bell holes. Reduces construction costs. Joint is leak-proof and flexible to allow for settlement, expansion or contraction. Hydrostatic tests prove the joint withstands pressures exceeding those required by standard pipe specifications. Approved by ULI in 4" and larger sizes. Furnished 2" and 2½" in 20-foot lengths, 4" through 12" in 18-foot lengths. Prompt shipment.



Cutaway to illustrate position of Tyton gasket inside assembled joint.

* Patent Pending Trade mark®

McWANE CAST IRON PIPE COMPANY
GENERAL OFFICES & FOUNDRIES, BIRMINGHAM, ALA.
Sales Offices: Dallas Chicago Kansas City New York Birmingham

Efficient Backhoe

374 You can operate your Davis backhoe in places inaccessible to other machines—or you can set up and be finished before other machines can maneuver into position. Moreover, you can dump close to the hole for quick refilling, or wide of the hole for easy accessibility. The machine is ideal for flush digging alongside buildings, fences and other obstructions. For details, write MASSEY-FERGUSON INDUSTRIAL DIV., 1009 S. WEST ST., DEPT. A, WICHITA 15, KANS.

New Waste Receptacle

375 The new top of these Superior waste receptacles has flaps that swing independently for safe, easy waste catching. The two full-width flaps swing in to keep the rain out. The hinged top folds back for easy emptying and is interchangeable with existing tops. For details on the complete line of Superior waste receptacles, write JOHN WOOD CO., SUPERIOR METALWARE DIV., ST. PAUL, MINN.

Overhead Maintenance

376 Such off the ground maintenance jobs as painting, tree trimming, light-servicing and others are greatly simplified with an efficient Strato-Tower. The unit comes in four sizes—35, 45, 65 and 95 feet—with a mount for every need. It is easy to operate with a single control. Write STRATO-TOWER DIVISION, ELKHART WELDING AND BOILER WORKS, INC., ELKHART, IND.

Brush and Branches into Wood Chips

377 The new M & M Beaver chipper converts useless brush, branches and limbs—up to 6 inches in diameter—into wood chips that can be used for mulch. The unit can be mounted independently on a steel frame welded trailer, or it can be mounted on trucks or tractors. For complete information, write MITTS & MERRILL, 1003 S. WATER ST., SAGINAW, MICH.

Parking Meters

378 The small number of parts and the easy accessibility of the Mi-Co parking meter mechanism make servicing fast and easy. These manual meters may be set for any number of hours on various coin combinations, and one coin slot takes all denominations from a penny to a quarter. Get full details on Mi-Co meters from MI-CO METERS, THE MICHAELS ART BRONZE CO., INC., P. O. BOX 668-A, COVINGTON, KY.

Weed and Brush Control

379 Municipalities, counties and townships are advised to spray the brush on roadsides and through highway cuts to reduce driving hazard and beautify local areas. This brush and weed control can be handled chemically at a cost about one-third below that of hand or mechanical cutting. A new 24-page booklet gives full details on chemical brush control. Write Mrs. Sharon Clayton, ORGANIC CHEMICALS DIV., MONSANTO CHEMICAL CO., ST. LOUIS 24, MO.

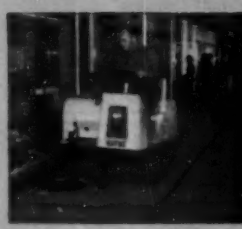
Long Pitch Pintle Chain for Sewage Treatment

380 Use the Moline long pitch pintle chain for grit washers, sludge collectors, scum removers, settling tanks and other units in your sewage treatment plant. The chain is assembled with forged "T" head type pins and cotters to prevent the entrance of grit and minimize wear. Get all the facts from MOLINE MALLEABLE IRON CO., ST. CHARLES, ILL.

(See page 64 for more Bulletins)

There's a WAYNE Sweeper for every sweeping problem!

Keep your public parking lots cleaner with the compact Wayne power sweeper. Economical, efficient sweeping to fit any budget.



Wayne's new power sweepers are designed for sidewalks, public garages, parkways, zoos, most any sweeping job.

Wayne's new power sweepers are perfect for sweeping municipal airports. Flexible, easy to handle. Can sweep up to 125,000 sq. ft. per hour.

Model 550, largest and finest with 4 cu. yd. hopper capacity.

Model 450, most popular sweeper in the world today. 3 cu. yd. hopper capacity.

Models 706, 705, 704. Designed for power sweeping in smaller areas. 10 to 15 cu. ft. hopper capacity.

Around the clock, every day of the year, Wayne Sweepers are proving their dependability, ruggedness and superior performance. There is no sweeping job too tough for a Wayne... Every Wayne feature has been test-proved under the severest conditions of climate and terrain... *that's why 7 out of 10 cities buying sweepers prefer a Wayne.*

So, whatever your sweeping problem may be, Wayne has a model to do the job *better* for your city.

WAYNE

World's largest producer of Power Sweepers for cities and industry.

Find out which WAYNE models you should have for your sweeper sanitation program.

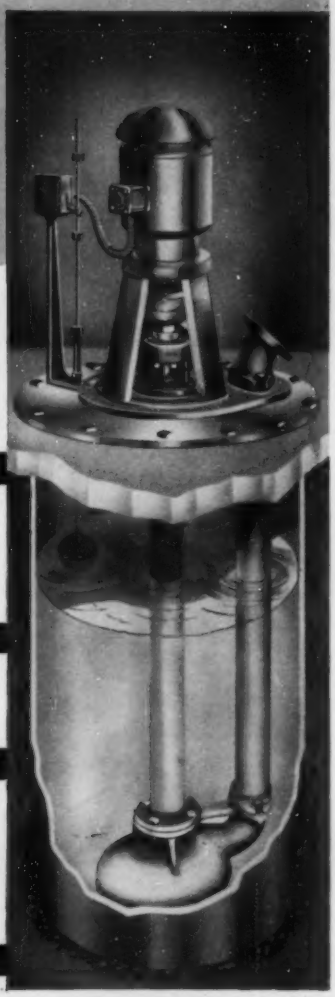
Fill out coupon. Mail now, no obligation.

WAYNE MANUFACTURING CO.
1417 E. LEXINGTON AVE. POMONA, CALIFORNIA

I want to know more about Wayne Sweepers.
Send me descriptive literature: ☐ Street Sweepers ☐ Power Sweepers
Show me a Wayne in action: ☐ Street Sweepers ☐ Power Sweepers

Name.....Title.....
Address.....
City.....Zone....State.....

SCREENLESS PUMPS for SEWAGE PUMPING DRAINAGE PUMPING with a REAL NON-CLOG IMPELLER



This HEAVY DUTY Sewage and Sump Pump with the famous NON-CLOG Impeller, effectively handles large diameter solids, rags and stringy material which are washed into the sewage pit.

RUGGEDLY BUILT

This factory assembled unit has an ample reserve of strength to meet the most severe conditions and to furnish years of trouble-free operation.

SIMPLIFIED INSTALLATION

Only one piping connection required. Only one electrical connection. An ECONOMICAL installation.

CAPACITIES

A large selection of units to meet every need. Capacities to 1500 GPM; heads to 86 feet; can be supplied with 1750 RPM, 1140 RPM or 870 RPM motors; four and five inch discharges.

NON-CLOG IMPELLER

The NON-CLOG Impeller built into this Screenless Sewage Pump supplies the ideal method of pumping sewage of other unscreened liquids containing solids. This design eliminates the necessity for expensive pneumatic ejectors and various other pumps requiring screening devices.

Successfully handles the tough jobs where other pumps fail.

Pumps of this design are still operating satisfactorily after 25 years in service.

Send for Bulletin C-900 or refer to weil catalog in Sweet's 1958 or Domestic Engineering Catalog Directory. Weil Representatives and Weil Engineers are available to help solve your waste pumping problems.

weil PUMP COMPANY

1518A North Fremont St. • Chicago 22, Ill.

Catalogs for You

Write directly to the manufacturers or use Post Card, page 54

Centriline System for Small Water Mains

381 A smaller version of the Centriline machine has been developed for use in water mains 6 to 14 inches in diameter. It can be used for small transmission and distribution lines, including those for fire protection, helping them regain their original flow capacity and pressure through the well-known Centriline process. Get full details from CENTRILINE CORP., 140 CEDAR ST., NEW YORK 6, N. Y.

Power for Every City Job

382 The Kohler line of portable electric plants includes models for trucks, street repairs, police and fire departments and civil defense. The company also makes automatic standby plants for use when central station power fails. All are described in *Folder A-20*. Write KOHLER CO., KOHLER, WIS.

Better Fire Protection with These Hydrants

383 R. D. Wood's swivel joint fire hydrant is simply constructed, with smoothly rounded changes in diameter which reduce friction and deliver water at full pressure. The entire head or nozzle section can be faced in any direction, simply by loosening the bolts in the flange. For details on this reliable hydrant, write R. D. WOOD CO., PUBLIC LEDGER BLDG., PHILADELPHIA 5, PA.

Chemical Feeders for Water, Sewage Treatment

384 W & T dry chemical feeders are used for every type of dry feeding problem found in water and sewage treatment plants. There is a feeder for any size job, from small equipment to measure out ounces, to accurate giants capable of handling thousands of pounds per minute. Both volumetric and gravimetric units are available. Get *Bulletin S-124* from WALLACE & TIERNAN, INC., 25 MAIN ST., BELLEVILLE 9, N. J.

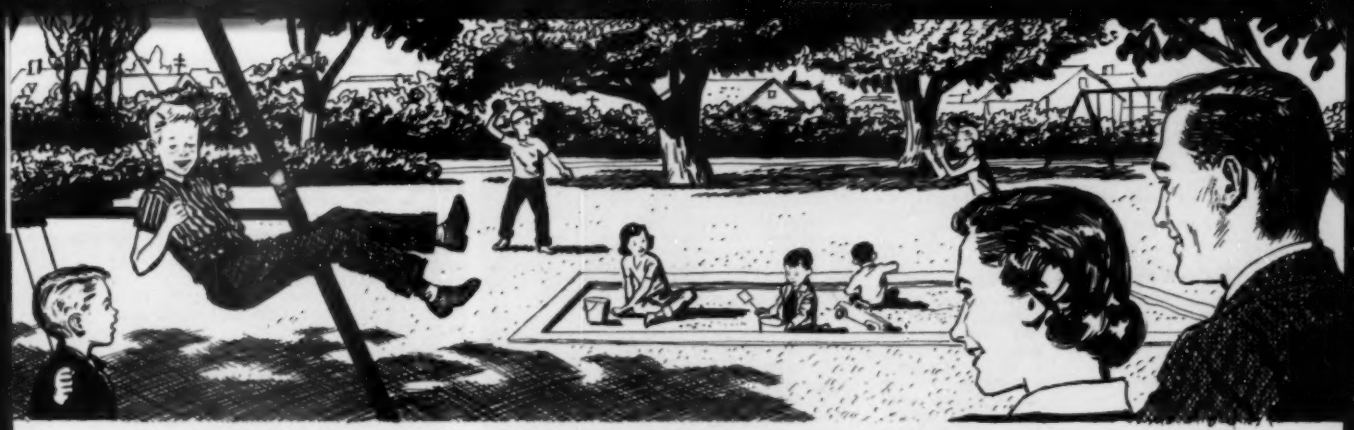
Three-Way Ice Control for City Streets

385 Three ways in which Solvay calcium chloride can aid winter ice control are discussed in this new booklet. For instant skidproofing on roads and hills, use Solvay calcium chloride treated abrasives. Fast glare-ice removal is assured with small quantities of calcium chloride. Too, small quantities of Solvay calcium chloride, added to salt, provide faster, more positive results. Write SOLVAY PROCESS DIV., ALLIED CHEMICAL & DYE CORP., DEPT. 61-1, 61 BROADWAY, N. Y.

Swimming Pool Ladder Has Built-In Thermometer

386 Equip public swimming pools with this new stainless steel pool ladder designed with a built-in thermometer. The thermometer is recessed into the first step of the ladder. It is plainly visible from poolside, and offers accurate reading around-the-clock. Get full details from ARCO SWIM-POOLS, INC., BUTLER, WIS.

(See page 66 for more Bulletins)



Playgrounds assured...

but what about their most precious possession...water?

Protect your community's water and future...with Badger Meters

Recreation facilities are an asset to your community. That's why you willingly allocate funds for their expansion. But what about water supplies? They're *vital* to community existence. Yet many communities are retarded in their growth because there just isn't enough water for expansion.

You can start conserving water and insure your community's future *now*. With Badger Meters, every consumer is assessed fairly for water used or wasted. This fair-share, fair-pay plan stops water waste . . . assures future supplies for community growth. And when water waste stops . . . conservation begins.

Precision-engineered from the finest alloys for lasting, dependable efficiency, Badger Meters put your water system on a profitable business basis. Whether your system requires disc, turbine or compound meters—you can choose the right type from the complete Badger Meter line—in sizes from ⅝ in. through 12 in. Ask your Badger Meter representative for facts — or write for literature *today*.

Water is vital

Badger Meters have conserved it better for over 50 years

Badger Water Meters

BADGER METER MFG. CO. • 2371 North 30th Street
Milwaukee 45, Wisconsin • OFFICES IN PRINCIPAL CITIES

Installing laterals to new residences, the city of Bellingham's Case "320" backhoe, with 19 GPM hydraulic pump and exclusive foot-con-

Catalogs for You

Write directly to the manufacturers or use Post Card, page 54

Two-Way Weed Control

387 Designed primarily to prevent weed growth before it takes place, this new herbicide can also be used effectively after weed emergence. Known as Simazin 50W, the new compound reaches maximum activity on germinating weeds, acting entirely through the roots. Detailed information on its many applications may be obtained from GEIGY AGRICULTURAL CHEMICALS DIVISION, GEIGY CHEMICAL CORP., ARDSLEY, N. Y.

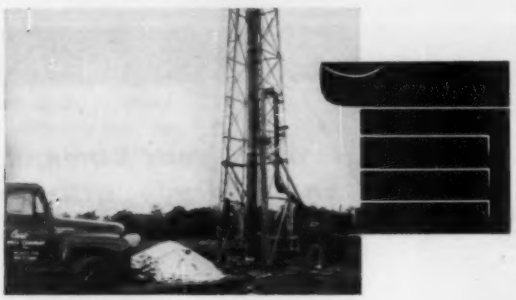
Mowers Cut and Trim in One Operation

388 Whichever Locke mower you choose —the Single, that cuts and trims in one operation, up to ¾-acre per hour, or, the Triplex, which cuts and trims in one operation, up to two acres per hour —you are assured fast, clean, trouble-free operation. Get full facts from LOCKE POWER LAWN MOWERS, 1315 CONNECTICUT AVE., BRIDGEPORT 1, CONN.

Automatic Valves

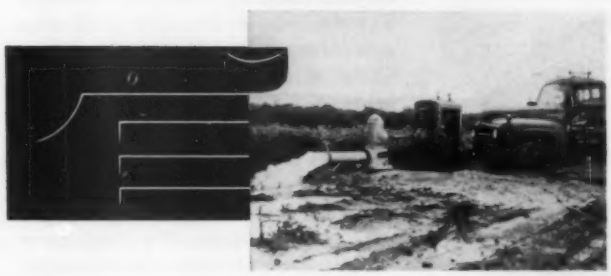
389 Altitude, back pressure, float, pressure reducing, surge relief and combination valves—with hydraulic and electric pilot controls—are available for water-works use. Write ROSS VALVE MFG. CO., INC., 8 OAKWOOD AVE., TROY, N. Y.

PICTURE OF A WISE WELL DRILLER 20 feet of 12" (#60) slot Red Brass Wire Wound Cook Well Strainer are lowered into a 120' Well drilled by Cart Well Co., Inc., Weiner, Ark.



PICTURE OF HIS REWARD

2000 gallons per minute for irrigating the cotton and soy bean farm of Billy Flippo near Turrell, Arkansas. The Cook strainer produced this water with less than 25 feet of drawdown.



Both Charlie Givens of the Cart Well people and Billy Flippo definitely agree on two things: irrigation and Cook Well Strainers. They know they can get the "long-pull" dependability from Cook that cheaper, inferior strainers can't guarantee.

You can get this kind of results by calling or writing Cook today. Wire-wound and tube-type strainers are available in slot sizes from .006 to .25" fabricated from Red Brass, American Everdur Bronze, Armco Iron or Stainless Steel. Eight to ten hours delivery often possible. Phone Cincinnati HU 1-8800.

COOK WELL STRAINER CO.

6330 Glenway • Cincinnati 11, Ohio

WORLD'S LEADING NAME IN WELL STRAINERS

Easy-to-Erect Steel Warehouse

390 Whatever your city's building needs, you can find an Armco steel building to meet them—economically and efficiently. A wide range of standard sizes, types and combinations will meet any floor area requirement. Types include shed roof, gable roof frameless, and gable roof rigid frame. Get *Manual SX-13757* from ARMCO DRAINAGE & METAL PRODUCTS, INC., PRODUCT INFORMATION SERVICE, MIDDLETOWN, OHIO.

Parking Meters Have "Split-Rate" Setting

391 An exclusive feature of Park-O-Meters is the "split-rate" setting which permits charging one rate for a specific period with a lower rate for extended time. The parking meter takes pennies, nickels, dimes, quarters or tokens. Operation is completely automatic. Write MAGEE-HALÆ PARK-O-METER CO., 3909 WILLOW SPRINGS RD., OKLAHOMA CITY 12, OKLA.

These Incinerators Have Large Dump-Plates

392 A special feature of all AE incinerator grates is their extra large dump-plate area. With these dump-plates, you can pass large objects through the grates without the dangers of clogging. The advantages of AE incinerators for municipal installation are described in literature from AMERICAN ENGINEERING CO., DEPT. S-108, WHEATSHEAF LANE & SEPVIVA ST., PHILADELPHIA 37, PA.

Fire Engines Get Automatic Transmission

393 Newest development in Mack fire engines is the addition of automatic transmissions. These transmissions provide for improved performance, faster running time, easier handling, and reduced maintenance costs. For detailed literature, write MACK FIRE APPARATUS, PLAINFIELD, N. J.

Packaged Filtration for Public Pools

394 Cities choosing Adams filtration for public swimming pools get a complete package—with an entire system that is designed for easy operation and minimum maintenance. The system uses diatomaceous filter aid and permanent Poro-Stone elements. Write R. P. ADAMS CO., INC., 202 E. PARK DR., BUFFALO 17, N. Y.

Street-Lighting Standards and Brackets

395 In the complete Hapco line of standards and brackets are designs for all types of modern, low maintenance outdoor lighting installations. For complete information on improved street lighting for your community, write HUBBARD ALUMINUM PRODUCTS CO., 6301 BUTLER ST., PITTSBURGH 1, PA.

For Quick Layouts

396 Many building and all office suites have to be replanned from time to time. Ready made templets are now available making exactly the right layout with the least time wasting and confusion. Moreover, the templets are magnetic. Place your templets on a sheet laid on a steel board. Magnetic attraction holds them in place. To make a print of your layout, slip a piece of sensitized paper between the vinylite sheet and the board and expose it to light. For complete information, including applications in civil defense work, write GROSS ENGINEERING CO., INC., 4800 ELM ST., BETHESDA 14, MD.

BADGER METER MFG. CO. • 2371 North 30th Street
Milwaukee 45, Wisconsin • OFFICES IN PRINCIPAL CITIES

Installing laterals to new residences, the city of Bellingham's Case "320" backhoe, with 19 GPM hydraulic pump and exclusive foot-controlled 180° swing, makes quick work of digging trench. Operator then reverses 2-way cushioned seat, and uses loader for backfilling. Here, hydraulic power steering and no-shift shuttle transmission cut working time in half.

CERTIFIED OWNER REPORT

How Case® "320" Backhoe-Loader cuts costs for city water department

To handle a wide variety of scattered earthmoving and maintenance jobs faster, and more economically, the Water and Sewer Dept. of Bellingham, Wash., recently added a Case Model 320 Industrial backhoe-loader combination to its equipment fleet.

The rubber-tired rig runs from one assignment to the next at speeds to 17.6 MPH . . . handles each job quickly and easily. With a powerful backhoe at one end and a 13-cu. ft. high-lift loader at the other, this versatile one-man-operated machine digs and backfills trenches for small main extensions and laterals . . . uncovers watermain breaks . . . replaces old service lines . . . installs new service connections . . . loads sand, gravel, and dirt into trucks, etc. It also carries and lowers pipe into trenches by means of a cable attached to a ring, welded on top edge of loader bucket by the Water Department.

Cuts installation costs

"We generally handle a number of service jobs at one time," says Henry J. Donnelly, Superintendent of the Water and Sewage Disposal Dept. "This way, we are able to utilize our pipemen for pipe work only — thereby cutting our service costs considerably."

"We are very pleased with this Case equipment," Mr. Donnelly adds. "It can be dispatched to jobs quickly — particularly in an emergency — and it can also be used for handling materials."

Investigate today

The city of Bellingham's experience with the Case "320" backhoe-loader is typical of municipalities the country over, that have discovered it pays to buy an all-purpose unit *designed, built and warranted by one manufacturer* for heavy-duty service. Get the facts now from your local Case Industrial Dealer, or mail handy coupon below.

CASE

1st in quality for over 100 years

INDUSTRIAL WHEEL and CRAWLER
TRACTORS • LOADERS • DOZERS
BACKHOES • FORK LIFTS

CLIP AND MAIL TODAY

J. I. CASE CO., Dept. B1568, Racine, Wis., U.S.A.

☐ Send free catalog on Case "320" Backhoe-Loader
☐ Send name of nearest Case Industrial Dealer

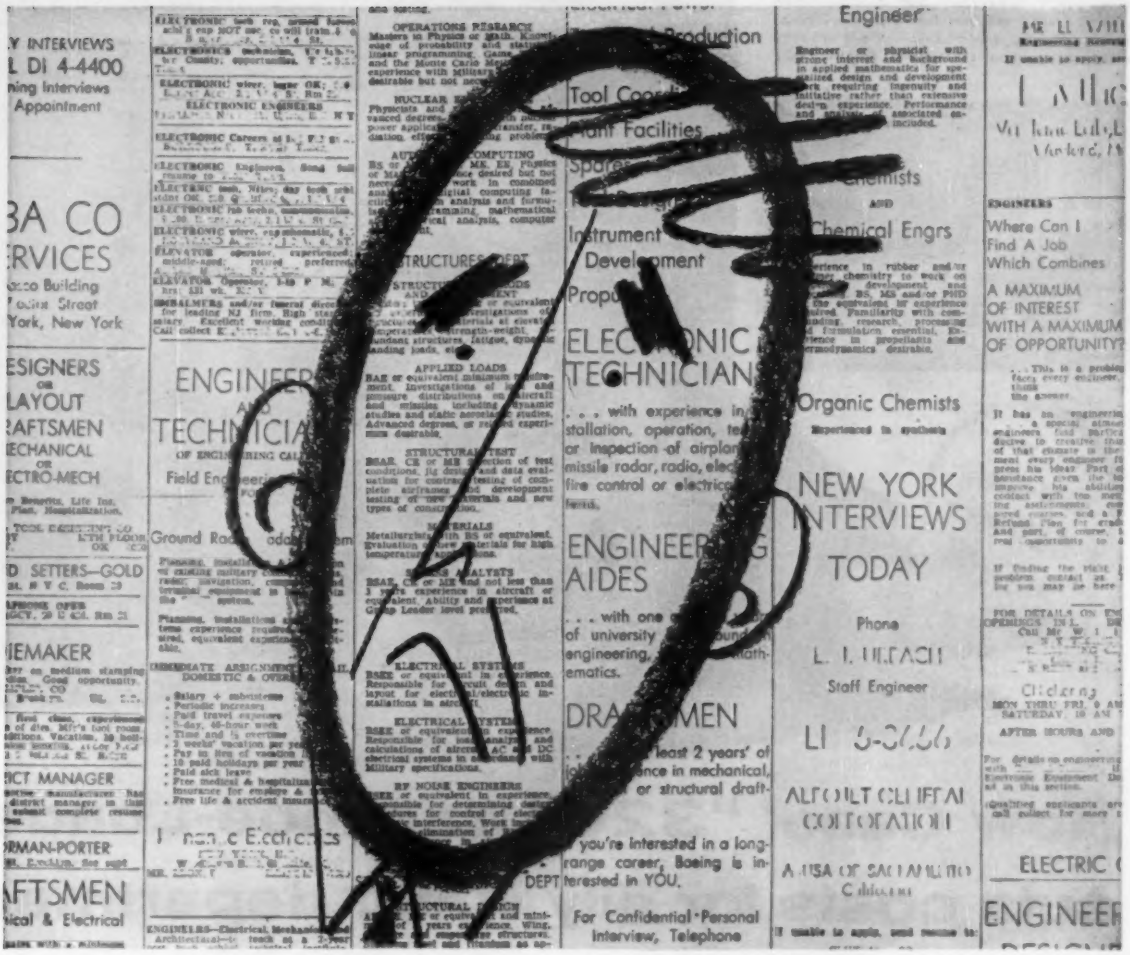
Name_____ Title_____

Employed by_____

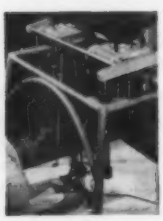
Address_____

City_____ State_____

C-BL-135



Manpower problems holding up your city mapping?



Before new streets, parks, playgrounds, housing and industrial sites can become a reality, there's often the manpower-consuming job of preparing up-to-date city maps. Can't spare scarce engineers for this important step? Let AERO Service do the job—from the air!

AERO has the experienced engineers, the aircraft and the modern plotting instruments to handle the entire mapping job—leaving your own busy engineering staff free for other important duties.

AERO photomaps provide a valuable planning guide for solving city growth problems. And AERO topographic maps are so precise, they can be used for planning street profiles and grades, sewage and drainage systems and other engineering work. Let us discuss your city mapping program now.

AERO SERVICE CORPORATION

PHILADELPHIA 20, PA. *Oldest Flying Corporation in the World*

AIRBORNE MAGNETOMETER SURVEYS • TOPOGRAPHIC MAPS
PLANIMETRIC MAPS • PRECISE AERIAL MOSAICS • RELIEF MODELS

1st in quality
for over 100 years

BACKHOES • FORK LIFTS

Address_____

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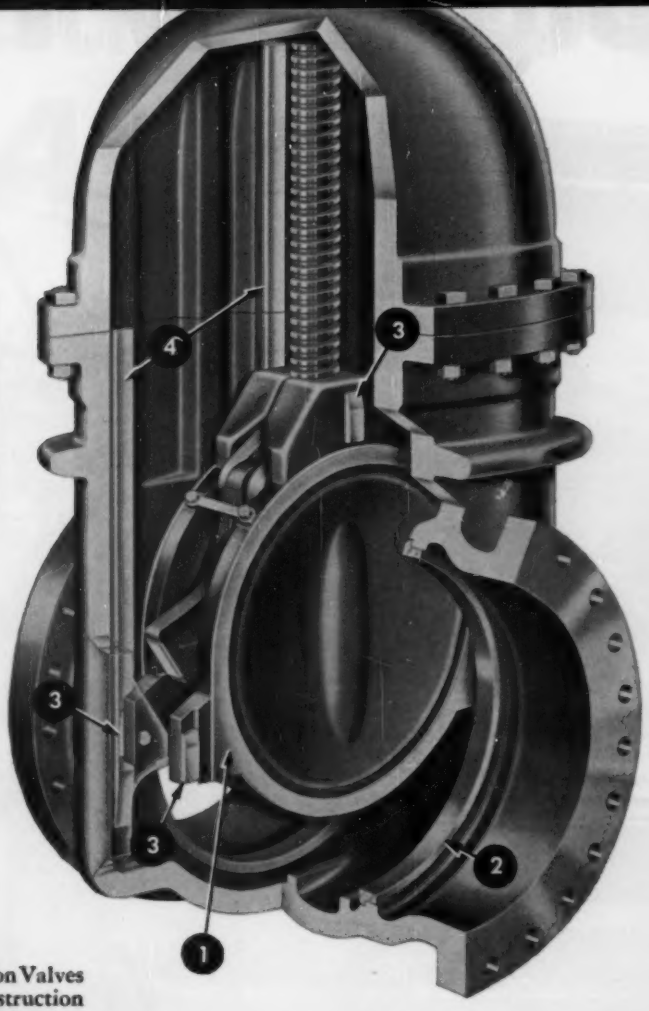
C-BL-135

SMITH THROTTLE CONSTRUCTION VALVES

ELIMINATES
disc tilting and chatter

REDUCES
wear of disc & seat ring faces



Smith Square Bottom Throttle Construction Valves have all of the time-proven design and construction refinements of standard Smith Gate and Tapping Valves and are recommended for severe service applications such as throttling in a partly open position, daily or frequent operation against high unbalanced pressure, high velocity or installation in a flat position in vertical piping.

The design features consisting of disc shoes and body tracks mechanically lift and hold the disc ring face (1) out of contact with the seat ring face (2) at all points of disc travel with the exception of the fully closed position.

Throttle construction valve discs are provided with three non-ferrous metal shoes (3), precision-machined and jig located. Valve bodies are provided with three non-ferrous metal machined tracks (4). The three disc shoes register with the three body tracks and each shoe is in contact with a track while the valve is unseated and in any partially open position. The bottom section of each track is bevelled to insure that the shoes will not bear on the tracks when the valve is fully closed.

This construction prevents damage to and uneven disc and seat face wear and assures long service life under severe operating conditions.

Single throttle construction is used when the flow is not subject to reversal. Double throttle construction when the flow is subject to reversal.

57

FIRE HYDRANTS · VALVES · SINCE 1896

THE A.P. SMITH MFG. CO.

EAST ORANGE, NEW JERSEY

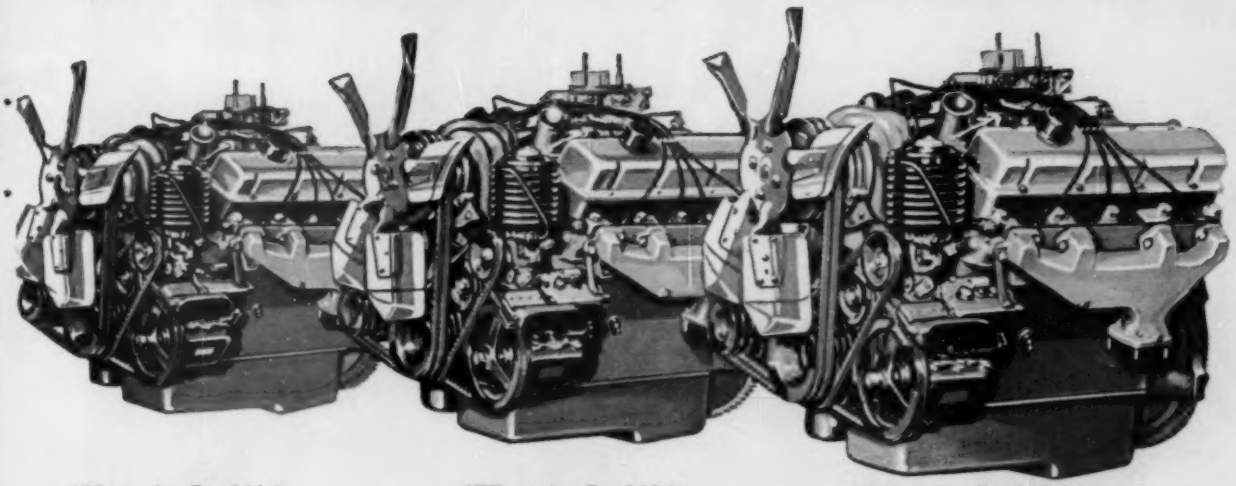
Big new FORD

Now...

NEW SUPER DUTY V-8 FEATURES

- Gross horsepower up to 277
- Gross torque up to 490 lbs-ft
- Modern Short Stroke design
- Three-stage cooling system
- Machined combustion chambers
- Sodium-cooled exhaust valves
- Stress-relieved blocks and heads
- Internally mounted oil cooler
- Water-jacketed intake manifold
- Submerged electric fuel pump

super duty V-8's up to 534 cu. inches!



401-cu. in. Ford V-8
Maximum horsepower—226.
Torque: 350 lbs-ft @ 1800 to 2300 rpm.

477-cu. in. Ford V-8
Maximum horsepower—260.
Torque: 430 lbs-ft @ 1800 to 2300 rpm.

534-cu. in. Ford V-8
Maximum horsepower—277.
Torque: 490 lbs-ft @ 1800 to 2300 rpm.

10 BIG NEW EXTRA-HEAVY TRUCK SERIES

GVW's up to 51,000 lb. For '58, ten new basic series are added to Ford's already extensive Heavy and Extra Heavy Duty line. Four new Tilt Cabs, four new Conventionals, and two new Tandem models offer GVW ratings up to 51,000 lb.

GCW's up to 75,000 lb. New T-950 Tandem is rated for 75,000-lb. GCW. Biggest single-rear-axle models are rated for 65,000-lb. GCW.

Front-axle capacities up to 15,000 lb. Choice of three front axles in most new Ford Extra Heavies. Rated capacities of 9,000, 11,000 and 15,000 lb.

Rear-axle capacities up to 29,000 lb. Wide choice of rear axles includes single-speed and two-speed, single reduction and double reduction types. Capacities range from 18,000 lb. to 29,000 lb.

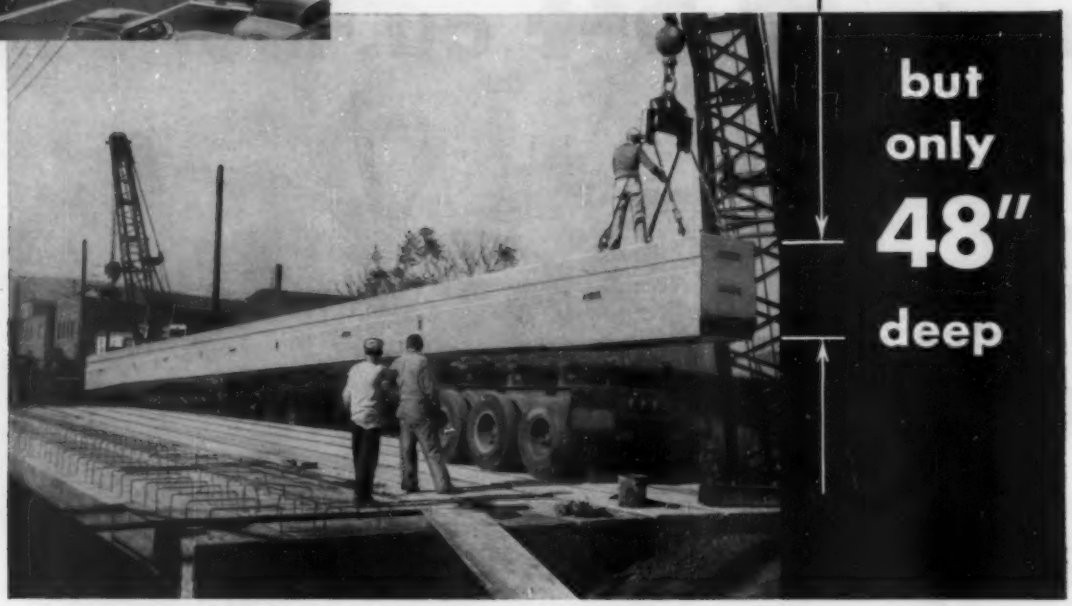
Bogie-axle capacities up to 38,000 lb. For '58 there are *five* Ford basic tandem axle models. Biggest of the *five* is the brand-new T-950 which features a tandem rear-axle assembly rated for 38,000 lb. Other bogie-axle capacities range down to 22,000 lb. for Ford Series T-700.

New transmissions. Roadranger transmission available in all ten new Ford Heavies. Up to 33% less shifting. Engines operate in peak horsepower range, use less fuel. "Short Fourth" transmissions also available on "F" and "C" Series.

FORD TRUCKS COST LESS

LESS TO OWN... LESS TO RUN... LAST LONGER, TOO!

Over 100 feet long...



AMDEK Prestressed Pretensioned Concrete BRIDGE SUPERSTRUCTURES

Fast, trouble-free erection of Amdek concrete bridges has resulted in their widespread acceptance by highway officials, engineers, contractors and the public. Depend on Amdek to provide superior structures on schedule and at low cost.

A "traffic stopper" only on the way to the job, these 103′ lengths of Amdek linear prestressed beams actually prevented a long traffic tie-up for the City of Scranton, Pa. by cutting bridge building time to a few days. And, in spite of their record length, these Amdek members are only 48 inches deep—a minimum depth-to-span ratio that means less weight plus the economies of greater clearance and reduced fill. Amdek linear prestressed beams were selected for this bridge over all other designs because of lower cost . . . speed of erection . . . ready availability of materials and ease of delivery. Before building *your* new bridge, consider these important advantages of Amdek—and write for colorful new brochure illustrating other outstanding features.

Another example of Progress in Concrete

AMERICAN-MARIETTA COMPANY
CONCRETE PRODUCTS DIVISION
GENERAL OFFICES:
AMERICAN-MARIETTA BUILDING
101 EAST ONTARIO STREET, CHICAGO 11, ILLINOIS, PHONE: WHITEHALL 4-5600

This photograph was taken in 1927.

No trouble in 30 years of constant service

Back in 1927 we furnished 10,235 ft of riveted steel pipe, with saddles, for this 7-ft-diameter penstock to serve Niagara Mohawk Power Corporation's Allen Falls, N. Y., hydroelectric station.

It was fabricated from 3/8-in. to 9/16-in. plates, with riveted girth joints on 10-ft centers. The pipe initially received only a shop coat and a field coat of red lead paint.

This pipe has been in constant service since 1927, operating with a head of 218 ft and a flow of 333 cfs, producing 4600 kw. During 30 years of continuous service there have been no pinholes, no leaks, nor any other damage to the pipe except for the minor loosening of some joints which were damaged when the wooden housing on the surge tank caught fire 20 years ago. These were simply caulked and have given no further trouble.

The pipe has been painted regularly and it looks just as good today as when it was first installed.

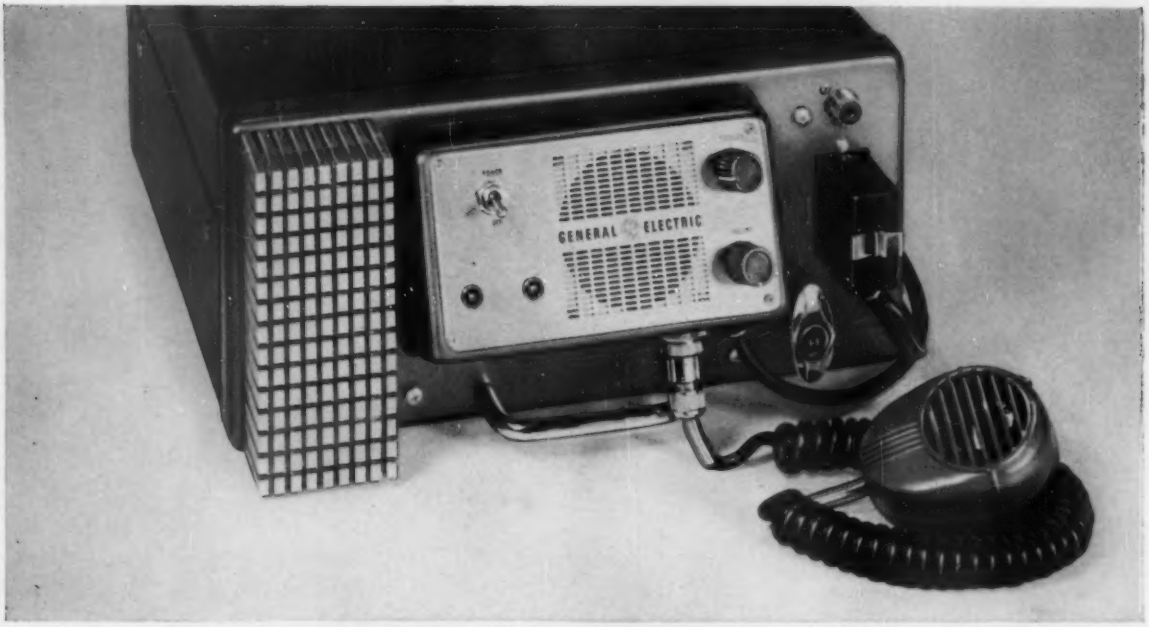
Reports like this, coming in from all over the country, indicate that steel pipe gives an extremely high quality of performance under the most demanding service conditions, for many, many years.

BETHLEHEM STEEL COMPANY
BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

BETHLEHEM STEEL

BETHLEHEM STEEL



First transistor-powered mobile radios up to 60 watts

General Electric's Progress Line mobile radios now offer transistor advantages in all bands.

New transistorized power supply for both transmitters and receivers means no vibrators to replace, no rotating or vibrating parts to wear out. Transistors, plus high quality silicon rectifiers, give you the most dependable mobile communication known today.

Progress Line mobile radios with transistorized power supplies are available in *all* communication bands: 30 or 60 watts in low band (25-54 mc), 25 or 50 watts in high band (144-174 mc), or 15 watts in UHF band (450-470 mc).

OPERATE FROM EITHER BATTERY POLARITY—Only General Electric's Progress Line lets you operate on either positively or negatively grounded 12 volt batteries. This is especially important in fleet operations.

IMPROVED RANGE—Vibrator hash usually associated with receivers is totally eliminated by the use of transistors. The result is maximum receiver sensitivity.

NOT DAMAGED BY VOLTAGE VARIATIONS—Unlike vibrators, transistorized power supplies can withstand battery voltage variations from +20 to −50 percent.

PROGRESS WITHOUT OBSOLESCENCE—No need to buy new power cable or control head. General Electric Progress Line mobile units with either new transistorized power supply or regular vibrator power supply are *completely interchangeable.*

Call your G-E communications consultant for full details. He's listed under "Radio Communication Equipment" in the Yellow Pages. Or write General Electric Company, Communication Products Department, Section **1258**, Syracuse, N. Y.

Progress Is Our Most Important Product

GENERAL ELECTRIC

DAVIS BACKHOE lets you work in Tight Spots!

Digs flush when you need to — only the Model 210 Davis Backhoe has the ability to dig flush alongside walls, buildings, fences. Has 200° continuous operating arc.

A Davis Loader and Backhoe combination will put money in your pocket by outperforming any other rig — pound for pound, dollar for dollar.

Digging near pipelines, conduits, utility mains, or other hidden obstructions is always a tough assignment... but a Davis Backhoe will let you handle those ticklish jobs easier and quicker with more safety and profit than any other make. Here's why!

DAVIS LETS YOU SEE YOUR WORK — Unobstructed visibility lets you work fast and accurately without having to "feel" your way around concealed objects or depend upon shouts and hand signals for instructions. Both seat and finger-tip controls swing with the boom, so you always face your work.

DAVIS HAS "ALERT" CONTROLS — Boom, dipper stick, bucket, and stabilizer foot respond lightening-fast to your command.

DAVIS GIVES MAXIMUM MANEUVERABILITY — Because of its exclusive flush digging feature, 200° continuous operating arc, and ability to dig at right angles, Davis lets you operate in places inaccessible to other machines. You can often complete jobs in the time it takes other makes to maneuver into position!... ***YET DAVIS STILL COSTS LESS THAN MOST OTHER MAKES!***

Davis Loaders and Backhoes are available for all popular models of International, Ford, Fordson Major, Ferguson, Case, Massey-Harris, Allis-Chalmers, Oliver, John Deere, Minneapolis-Moline, and Work Bull Tractors.

SOLD AND SERVICED EVERYWHERE BY BETTER DEALERS

For the name of your nearest dealers call Western Union by number and ask for Operator 25... or write direct. Please specify make of tractor.

MASSEY-FERGUSON INDUSTRIAL DIVISION
MASSEY-HARRIS-FERGUSON, INC.
1009 S. WEST STREET Dept. A WICHITA 15, KANS.

Look of the future on highways of new-type concrete.

"I drove the new-type, sound-conditioned concrete—and couldn't believe my ears!"

reports JOHN CAMERON SWAYZE, noted TV and radio news analyst

Quiet as rolling over a pencil line! Cushion spaces in new-type concrete are sawed in by a blade only ¼" thick. Tires never know they're there!

"You'll hear no thumps on this continuous-laid concrete. There are none! It's bringing the riding comfort of 1975 *now* . . . on highways of our new Interstate System."

Every ride is a pleasure on new-type concrete! Smooth, hushed. For *sound-conditioned* means no joints . . . only tiny, barely visible cushion spaces *sawed* into the concrete. Not a thump to be heard, or felt.

Highway engineers helped make this concrete smoother riding in other ways, too. It's "air entrained"—filled with billions of minute air cells that prevent surface roughening from severe weather or de-icers. A special granular base keeps the pavement flat.

New-type concrete has a life expectancy of 50 years and more—with up to 60% less upkeep cost than for asphalt. Yet initial cost is modest.

And what could be *safer*? Rain or shine, concrete's grainy surface gives dependable skid resistance. At night, its light color lets you see far better than on dark surfaces.

Concrete has been used for over 90% of America's most heavily traveled roads. Only this material can be accurately engineered to stand up to future traffic loads. That's why concrete is preferred for the 41,000-mile Interstate System to link 209 major cities throughout 48 states.

NEW-TYPE Concrete

PORTLAND CEMENT ASSOCIATION

A national organization to improve and extend the uses of concrete

ONE OF A SERIES appearing in full color in such magazines as *The Saturday Evening Post*, *Look*, *Fortune* and *Reader's Digest*.

John Cameron Swayze helps tell today's highway story to the driving public

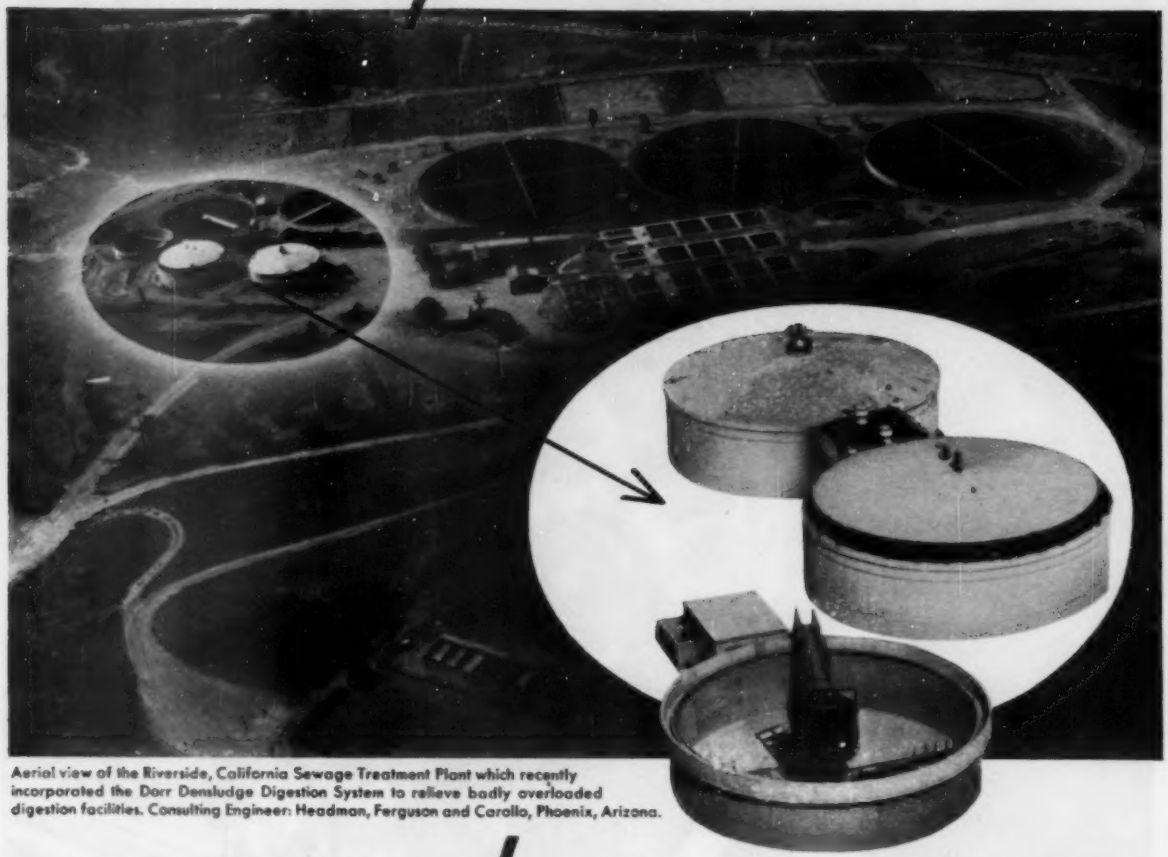
One of America's best-liked news analysts is featured in this timely PCA message which will be seen by more than 47 million Americans of driving age.

Other well-known personalities will follow him in PCA's new national advertising program in popular consumer magazines. It's a program dedicated to informing the public about today's new, finer, smoother-riding concrete pavements. It will interpret in a lively way to the public facts and features long familiar to you. It will do its part to help make your efforts more productive . . . especially in reaching the goal of 41,000 miles of Interstate System highways, designed to the standards of 1975.

PORTLAND CEMENT ASSOCIATION

A national organization to improve and extend the uses of concrete

IT'S NEW / It's from DORR-OLIVER

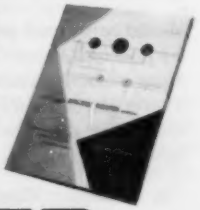


Aerial view of the Riverside, California Sewage Treatment Plant which recently incorporated the Dorr Densludge Digestion System to relieve badly overloaded digestion facilities. Consulting Engineer: Headman, Ferguson and Carollo, Phoenix, Arizona.

The Dorrco DENSLUDGE DIGESTION SYSTEM

The new Dorrco Densludge Digestion System, already proven in full-scale treatment plants, is a new method of digesting sewage sludge that makes possible a reduction of up to 80% in digester capacity requirements compared with conventional systems. The basic operation of the Densludge Digestion System involves concentrating sludge ahead of digestion in a specially designed thickener, then digesting sludge in a Digester equipped with high-capacity draft tube mixers.

By removing the excess water in the raw sludge the Densludge Thickener reduces by one half, or more, the volume of raw sludge to the Digester. In the Digester, high capacity draft tube mixers insure full capacity utilization by maintaining homogeneous conditions throughout the tank. These reductions in sludge volume can now be directly translated into reductions in overall digester capacity requirements.



For more complete information on The Dorrco Densludge Digestion System, write for a copy of Bulletin No. 6262, Dorr-Oliver Incorporated, Barry Place, Stamford, Conn.

Densludge — T.M. Dorr-Oliver Inc.

DORR-OLIVER
INCORPORATED
WORLD-WIDE RESEARCH • ENGINEERING • EQUIPMENT
STAMFORD • CONNECTICUT • U.S.A.

WATER DEPARTMENT PURCHASING AGENT

Expert on Values

He says, "When I purchase American Meters, I achieve two advantages, moderate first cost and reduced inventory costs!"

An experienced purchasing executive looks beyond the first cost when he purchases water meters. He must consider parts replacement and repair costs also. American Meters are noted for their simplicity of design. Fewer parts permit more rugged parts, resulting in trouble-free operation year after year. Such service reduces the need for a large parts inventory and lowers maintenance costs.

"In American Meters", says this expert on value, "I gain *both*—a moderate first cost and a reduced inventory cost—that's why I buy "American!"

American solid casing meter simplest complete meter — sizes to 6".

BUFFALO METER CO.

2902 Main Street • Buffalo 14, New York

TIME FOR DRILLING 3½" HOLES THROUGH 10"

Dual-purpose A-W Roller-Compactor shown in use on a highway relocation job near Harrisburg. The machine has been approved by Pennsylvania for complete compaction of stone base aggregates up to 10 in. thick on highway construction in that state.

New A-W Roller-Compactor* cuts highway building costs

Three states prove that machine makes large savings possible

Deep penetration vibratory compaction and static weight surface rolling can now be accomplished in a single pass by the new A-W Roller-Compactor. On-the-job operation of this dual machine in Oklahoma, Louisiana and Pennsylvania has shown that it can make significant savings in man and equipment-hours.

The original test in Pennsylvania, which led to State approval of the machine, was carried out on a highway relocation job near Harrisburg. Preparation of the roadbed required straight excavation, with no borrow. Largest fills were 25 ft. After grading and soil compaction, stone for a 10-in.-thick base was put down in a single lift. All the stone passed a 4-in. screen, 85-100% a 3½ in. Following spreading and initial compacting with the A-W Roller-Compactor, the stone was choked with screenings, 100% passing a ⅜-in. screen, 85-100% a No. 4 screen, 10-30% a No. 100. In this operation, the static weight of the roller (10 tons) held the stone in place while the deep, penetrating action of the vibrating shoes quickly filled the voids with screenings. No auxiliary rollers were necessary.

Engineers of the Pennsylvania Department of Highways testing laboratory checked the job with inspection holes to determine if the screenings were evenly distributed throughout the thickness of the stone base and if the stone itself was firmly keyed together. This check, plus measurements based on the yield needed to compact 1 cu. yd. to the required 10-in. depth, showed that the new machine had done a job exceeding the minimum requirements. The engineers then recommended that it be approved for highway construction work in Pennsylvania.

Time studies on this job showed a saving in man and equipment-hours of better than 25% compared with methods then employed which used a single-purpose vibratory compaction unit followed by a separate 3-wheel, 10-ton roller. It was estimated that a contractor using the A-W Roller-Compactor on stone base could reduce his compaction bid on the job by 10¢ per square yard.

Spectacular results were also obtained with this machine in on-the-job operations in Oklahoma and Louisiana. For complete details see your nearby A-W distributor or write to us.

*Patent applied for

Austin-Western CONSTRUCTION EQUIPMENT DIVISION, AURORA, ILL.

BALDWIN · LIMA · HAMILTON

Power graders • Motor sweepers • Road rollers • Hydraulic cranes

TIME FOR DRILLING 3½" HOLES THROUGH 10" REINFORCED MERAMEC GRAVEL CONCRETE FLOOR CUT FROM 6 HOURS TO 30 MINUTES

JOB: Cut 150 holes 3½" diameter through 10" concrete floors for new conduit feeders in the warehouse section of the old Mart Building, now the St. Louis Area Support Center, St. Louis, Mo. The Building, constructed in 1932, was built of concrete containing Meramac gravel aggregate—"the next thing to flint". Chiseling these holes would have resulted in jagged and uneven holes, much dirt and noise, a big clean-up job and much patching to finish up the job and would have averaged six hours each for two men.

CONTRACTOR: The Sachs Electric Corporation, St. Louis, Mo.

TOOLS: Model C Truco Diamond Drilling Machine with 350 rpm motor and 3½" O.D. Truco Diamond Drill Bit.

DESCRIPTION: Truco unit was used mounted on its mobile base and moved to location on its rubber tired wheels. Actual drilling time on each hole was from 6 to 9 minutes depending upon the number of reinforcing rods to be cut. Each completed hole averaged 30 minutes including all moving, set-up and core removal. (Compare with previous 6 hours for two men with air hammers.) Completed hole was clean and smooth and no patching needed. Truco unit is completely portable by one man and is designed for high speed drilling in practically any location. Wired for 110 V, 60 cycles or less.

WRITE FOR NAME OF NEAREST DISTRIBUTOR

Truco Swivel Division
WHEEL TRUEING TOOL CO.
28-3200 W. Davison Ave. • Detroit 38, Michigan

PROGRESSIVE CITIES SELECT F&E INCINERATOR STOKERS

Patented

Designed and manufactured by a century-old concern with 40 years' experience in designing, engineering and completely manufacturing hydraulically-powered stokers.

"F&E" Hydraulically-Powered Stokers are the most talked-of incinerator advancement in the field today.

Should you wish to see an "F&E" Incinerator Stoker in operation and get firsthand information on their revolutionary performance, we will be pleased to advise where the installation nearest you is located.

FLYNN & EMRICH CO.

301 NORTH HOLLIDAY STREET • BALTIMORE 2, MARYLAND

WIN A CASH PRIZE!

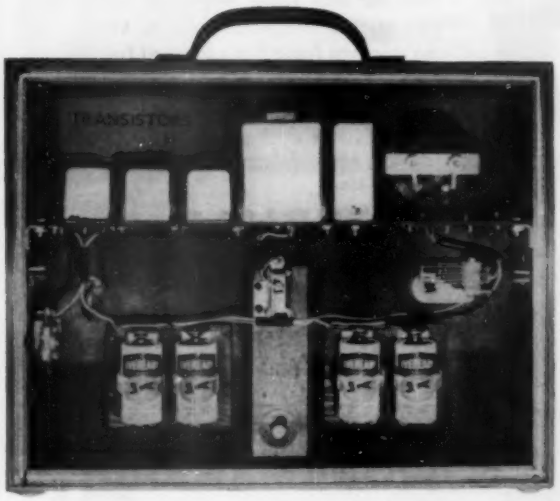
NAME GOLDAK'S 25th ANNIVERSARY

TRANSISTORIZED

PIPE LOCATOR

GOLDAK'S 25th Anniversary

NEW PRODUCT



DESIGNED FOR PINPOINT DETECTION OF UNDERGROUND PIPES, CABLES, MAINS, LATERALS, VALVES

THE MOST EFFECTIVE PIPE LOCATOR OF THE CENTURY

Goldak commemorates 25 years of Manufacturing the World's Finest Electronic Locating Equipment with a completely new Transistorized Pipe Locator. To help celebrate this occasion, The Goldak Company invites the readers of the publication, its friends and customers, to participate in a Contest naming this revolutionary Pipe Locator. The winner will receive a $100 SAVINGS BOND and the winning name will be used in all future advertising. To help you select a suitable name, some of the features and specifications of this machine are listed below:

FEATURES:

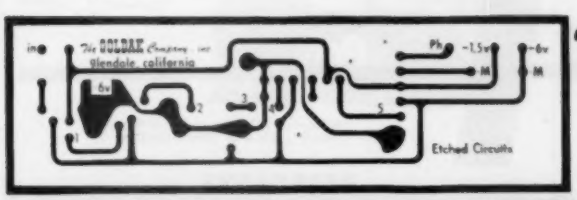
Transistors, printed circuit boards and packaged circuits for better locating; small sized flashlight batteries for maintenance savings.

Transistors and other components encapsulated preventing temperature, humidity, shock and vibration problems.

SPECIFICATIONS:

Operating Weight
Transmitter—4½ lbs.
Receiver—4¾ lbs.
Circuit
Transmitter—one transistor
Receiver—six transistors
Batteries
Transmitter—
4 size C flashlight cells
Receiver—
4 size C flashlight cells
Sensitivity—18 ft. depth range, approximately 200 ft. average tracing distance.

For further information, write The Goldak Company for Literature and name of your nearest dealer.



The GOLDAK Company, Inc.

Leading Electronic Manufacturers Since 1933

1544 W. Glenoaks Blvd.
Glendale 1, Calif.

CONTEST RULES

Everyone over 21 years of age is eligible to enter this contest with the exception of the employees and families of The Goldak Company, their advertising agency and this publication. Simply print the name you suggest where indicated in the coupon, your Name, Address, City and Where Employed. Mail to "CONTEST" The Goldak Company, 1544 West Glenoaks Boulevard, Glendale 1, California. All entries must be postmarked no later than midnight, March 15, 1958. All names become the property of The Goldak Co. Winner will be notified by mail.

I suggest the following name for the
TRANSISTORIZED PIPE LOCATOR

_____

Name _____

Address _____

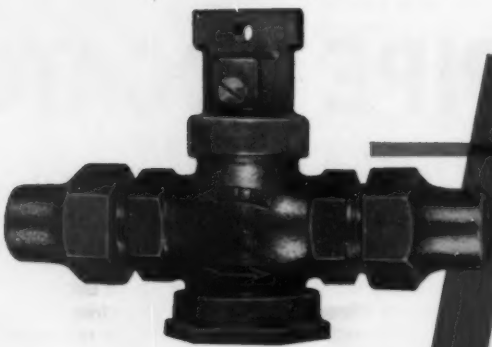
City _____ Zone _____ State _____

Where Employed _____

MANUFACTURERS OF THE WORLD'S FINEST LOCATING EQUIPMENT

MUELLER®

inverted key curb stops



superior

DESIGN

Steeper key taper provides easier operation. Water pressure exerts an upward force for additional seating action. A downward tap unseats and pressure reseats the key.

MATERIALS

All parts – body, key, coupling nuts, base caps, combined cap and tee, etc. – are cast from high-quality bronze. Leak-proof gasket around base cap prevents leakage.

WORKMANSHIP

All machining is to exacting tolerances. Bodies and keys are precision-fitted and individually lapped. Every stop is tested with air pressure under water.

■ A variety of Mueller Curb Stops is available, with a complete range of inlet and outlet types and combinations. Your Mueller Representative can help you with any Curb Stop problem. Call on him or write direct.

MUELLER CO.
DECATUR, ILL.

Factories at: Decatur, Chattanooga, Los Angeles;
In Canada: Mueller, Limited, Sarnia, Ontario

You'll hear a lot about

MONO-VANE

SINGLE PASSAGE IMPELLER

the New NON-CLOG PUMPS "by Aurora"

PATENT PENDING

AVAILABLE HORIZONTAL or VERTICAL

The BALANCED Impeller may be trimmed — to suit other heads and capacities — yet REQUIRES NO SEPARATE COUNTERBALANCE

●

UNSURPASSED for HANDLING LONG STRINGY SOLIDS

●

EXCELLENT NON-OVERLOADING CHARACTERISTICS

●

IDEAL FOR ELEVATING SEWAGE — PUMPING SLUDGE — HANDLING SETTLEABLE SOLIDS, EFFLUENT and OTHER WASTES

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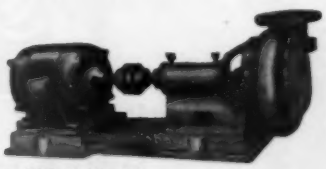

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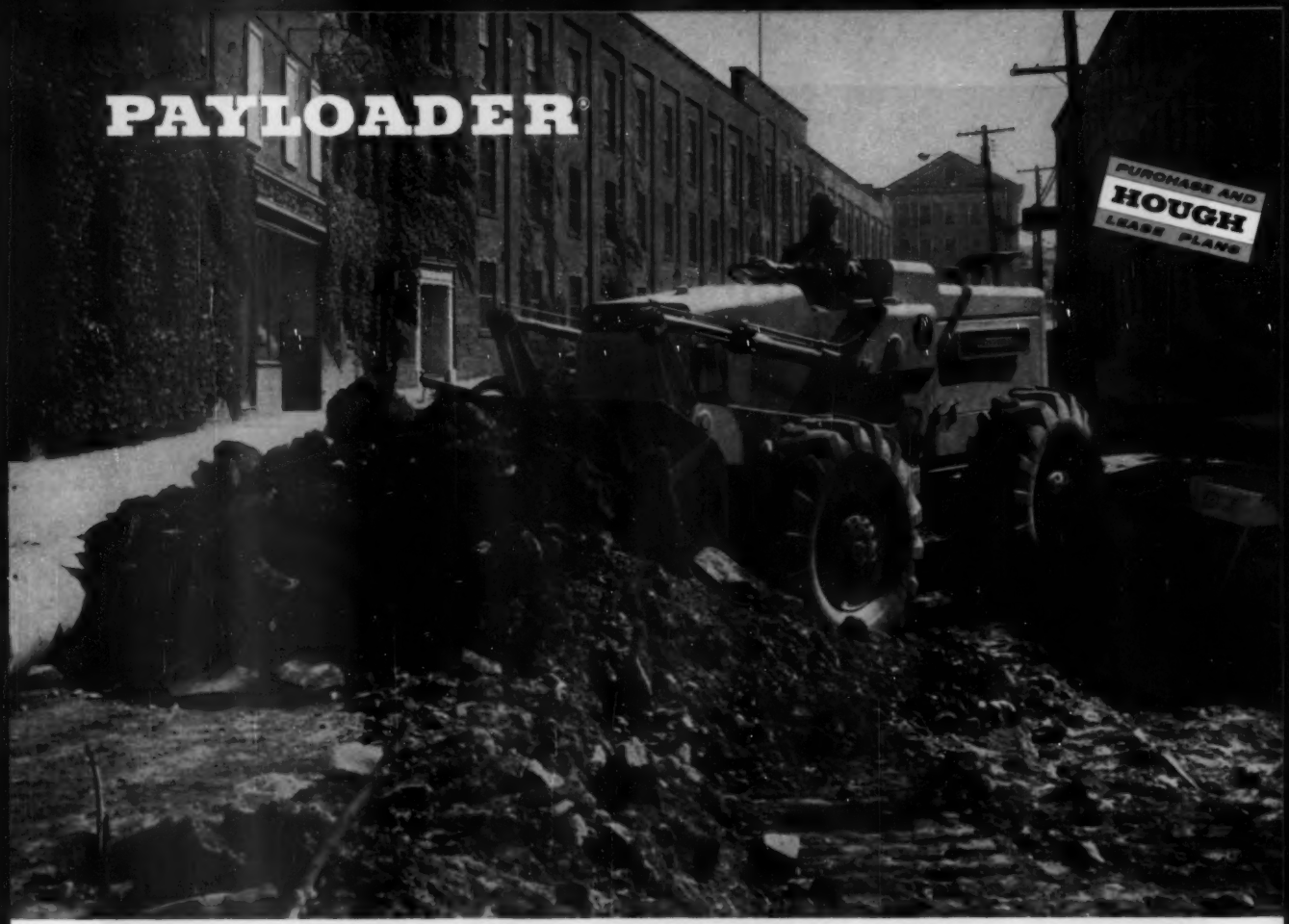

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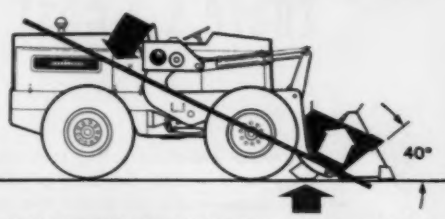

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-Ruskin

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FEBRUARY 1958 The American City

Westport Tea Party Boosts Sanitary Landfill Popularity

Party held at the disposal site convinces citizens of improved operating conditions and effective odor control

By ROBERT A. HAY
Public Health Sanitarian
Westport, Conn.

WESTPORT'S problem lies not in how to dispose of its garbage and refuse, but where. To understand the problem, one must know a little about the community. It is, to say the least, a high-priced commuter town in Connecticut, about 40 miles from New York City. Land is expensive, and large estates and high priced homes predominate. No matter where it may be located, the refuse disposal site is bound to be adjacent to a beautiful residential area. To make matters worse, past experience with landfill disposal practices has soured many citizens on an operation of this type.

Private collectors pick up mixed garbage and refuse and dispose of it at a town-operated disposal site. All vehicles must pass yearly sanitary inspections and be licensed by the Health Department at an annual fee of $10.

Household collections average two per week and commercial collections average one per day. Collection frequency depends upon the need and the householders' willingness to pay. The cost of collection per house averages about three dollars per month. During 1957 the Health Department licensed 12 collectors.

Landfill Operation

Although the town operated a sanitary landfill, it did not do so in a way that met the best possible standards. Lack of good operating procedure and occasional odors soon

Chemicals sprayed in the air as a vapor or applied directly to the refuse by means of a power sprayer mounted on a tractor effectively control odors that may emanate from the area. Concentrations vary according to degree of malodor and climate.

A view of Westport's sanitary landfill site taken during the "Tea Party." Approximately 500 persons attended the affair.

brought criticism down upon Westport's operation and sanitary landfill in general. However, we knew that such an operation could be successfully conducted, even in Westport, and set out to prove it. This we felt was necessary before additional sites could be obtained.

Since the old area was pretty well filled, it was completely covered with earth and the landfill operation moved to a new site occupying a portion of the Saugatuck River tide flats. This time the authorities made every effort to eliminate adverse opinion.

An earthen dike about 8 feet high and 4 feet wide prevents flooding of the area. All trucks discharge their load in a closely controlled area and a Caterpillar Crawler tractor compacts the material into layers about 4 to 5 feet high. At the end of each day the tractor spreads a 1- to 2-foot layer of earth over the refuse to form a cell. When the entire area is covered, the operation is repeated to form a second layer of cells.

Odor Control

Odor control makes up an important part of the new operation. Here we turned to Airkem, Inc. of New York for a solution. Equipment includes a Copeland air compressor, powered by a Briggs and Stratton engine, and a spray device, all mounted on the rear of the tractor. The Airkem formulation may be sprayed into the air as a vapor or sprayed directly on the material as a liquid. The concentration is varied according to weather and odor conditions.

During the summer months the tractor operator used the odor control equipment every day the landfill was in operation. Now that colder weather is here the unit is used only if an odor is noticed or a complaint made. To date we have not received a single complaint since adopting odor-control procedures at the new landfill site.

Tea Party

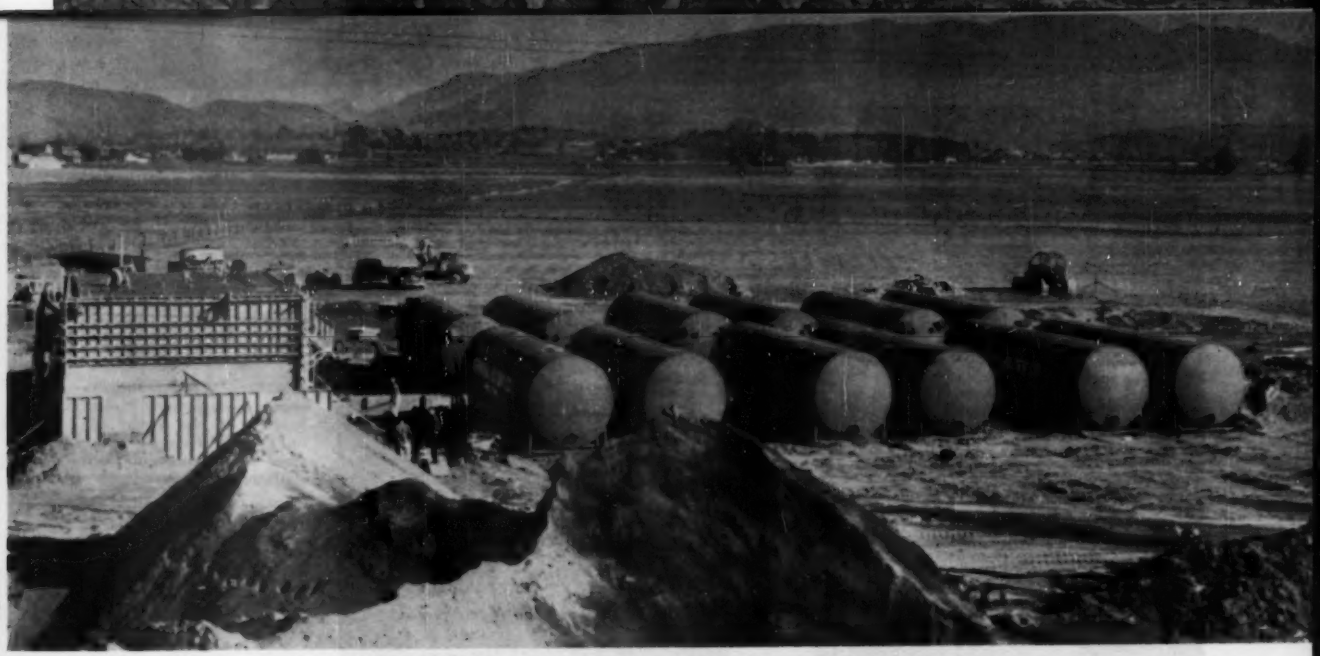
Westport's troubles are not over. In another four to six months the present area will be filled, and, to date, citizens, still remembering the old operation, have objected to all proposed locations for the new site.

Since the new operation has aroused no complaints, few citizens knew what the area looks like or how sanitary a true sanitary landfill can really be. The town officials felt some action was necessary to show Westport citizens all was not as bad as it once appeared. A gala tea party to be held at the disposal site appeared to be the answer to this public relations need.

The party took place on October 5, 1957. It was a grand affair, complete with a five-piece band, tuxedo-garbed master of cermonies, and plenty of tea served from sterilized 20-gallon garbage cans. Some 500 people showed up—and appeared to have a good time.

Results Are Favorable

The results, although inconclusive, are certainly favorable. Although a large site has not been found, several persons have offered the use of small areas. These are actually portions of large back yards in need of fill. The owners, after observing the disposal operation at the tea party, felt the sanitary landfill provided an acceptable means of filling in low areas on their land. So far town officials have not accepted these offers because of the small size of the areas, but are convinced more offers will be forthcoming and that a site of sufficient size will be found. They do know that with good operating procedures and odor control a sanitary landfill can be conducted without causing a nuisance and the tea party proved it to many of the townspeople.



A view of the plant during construction showing the pressure filters in place.

Anacortes, Wash., builds world's largest pressure filter plant and gets . . .

One Water Filter Plant Instead of Five

By H. W. KRAMER
Carey and Kramer
Seattle, Wash.

ANACORTES, Wash., soon starts operation of an iron-removing filter plant designed to take over the work of three existing plants and eliminate construction of two more. Designed for a maximum capacity of 24 mgd and a normal flow of 18 mgd, it will serve three major industries, a naval base, a small town, and the City of Anacortes, whose population is 10,000.

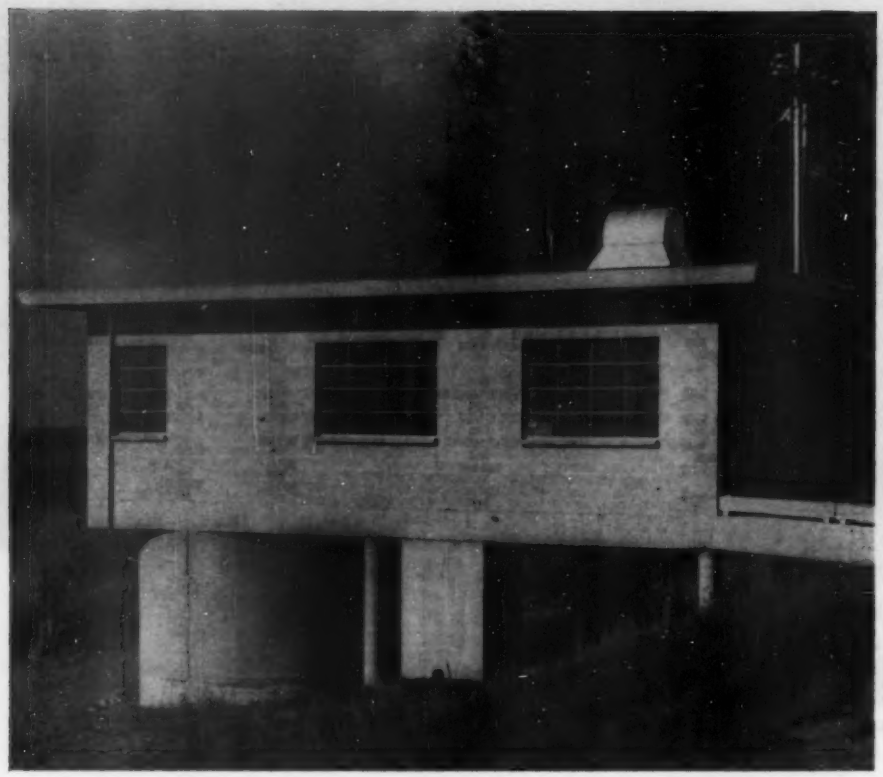
Anacortes receives all water from two Ranney wells located on the banks of the Skagit River about 12 miles east of the city. These wells filter the river water (high in turbidity) by natural means, but in so doing, pick up ground water heavy in iron. This mixture results in a water containing from 3 to 4 ppm of iron.

An interior view of the raw water pump station showing pump motors and controls.

Iron-Free Water Desired

The city delivers raw water to the large naval base on Whidby Island, to the Town of La Conner, to Coos Bay Pulp Mill and to the new Shell refinery, as well as to its own citizens. In addition, the Texas Company is now constructing a refinery scheduled for completion in 1959 that will also require a considerable amount of water.

Filter plants were being operated at the naval base, at La Conner, and at Anacortes. The Shell refinery de-



Left:

Anacortes' water supply comes from Ranney Wells located on the banks of the Skagit River. This view shows one of the wells and pump station.

Below:

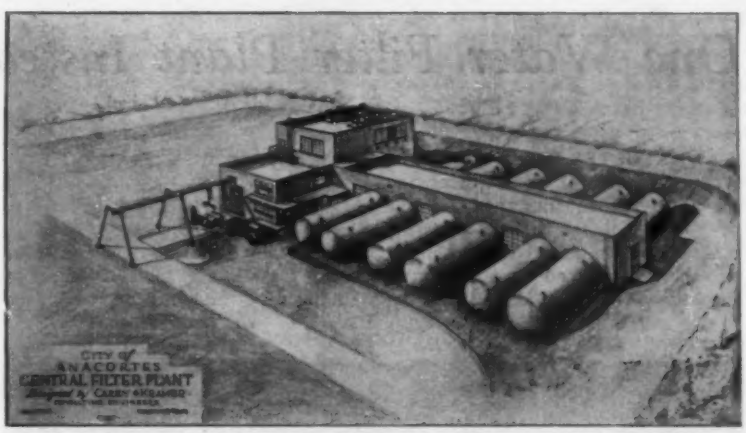
An artists' sketch of Anacortes' new water filtration plant, largest of its kind in the world.

cided that it would be to its advantage to construct an iron-removing filter plant and, finally, The Texas Company decided it also wanted filtered water.

This condition led the City of Anacortes to retain the Consulting Engineering firm of Carey and Kramer, Seattle, Wash., to make a preliminary survey to determine whether the city could economically build one new iron-removing filter plant large enough to furnish iron-free water to all customers. This, of course, meant the abandonment of existing plants and a decision on the part of the oil companies not to build plants as scheduled. The survey clearly indicated that the cost of operating five separate plants and building two new ones was more than the cost of constructing and operating one new central iron-removing filter plant.

A study of the records showed the following normal maximum monthly flows:

City of Anacortes	2.5 mgd
Coos Bay Pulp Mill	5.0 mgd
Navy Base	2.0 mgd
La Conner	1.0 mgd
The Texas Company Refinery	3.5 mgd
The Shell Refinery	3.5 mgd
Total	17.5 mgd



Based on these figures, we decided to design an iron-removing filter plant and pumping facilities for a maximum capacity of 24 mgd and a normal flow of 18 mgd. A portable pilot plant aided in determining the best method of obtaining the desired results. A study of comparative costs for various kinds of plants showed that a pressure filter system would prove best under existing conditions.

The city accepted bids for equipment in April 1957 and for construction in August 1957. Completion is scheduled for the early part of 1958.

Six Layne & Bowler vertical pumps installed in the Ranney wells pump the raw water to and through the plant to the high head pump wet well. These pumps are rated at 2,800 gpm at 122-foot head.

The filtration plant consists of 12 pressure filters, each 45 feet long and 10 feet in diameter. The supporting media is graded gravel and the filtering media is graded anthrafilt. At 18 mgd the filter rate amounts to 2.31 gpm per square foot of filter surface and at 24 mgd the

rate is 3.08 gpm per square foot of filter surface. Two Ingersoll Rand air compressors supply a total of 300 cfm of air to the filters for the oxidation of the iron. Method of application is by injection into the header at each filter through a diffuser. The filtered water passes through four 13-foot square x 14-foot high, forced draft aerators for pH correction and the removal of carbon dioxide before entering the high-service pump wet well. A 500-pound capacity Wallace & Tiernan automatic chlorinator with 3-point application will be used to assist in the oxidation of iron and to comply with State Health Department requirements.

The General Filter Company furnished the filters, filter media, compressors, chemical feeders, aerators, and controls.

Eight Johnston high-speed pumps will serve the distribution system through a 36-inch transmission main. These units have ratings of 2,800 gpm each at a head of 530 feet and are driven by 400-hp motors—three Allis-Chalmers, one Fairbanks-Morse, and three General Electric. Two of the pumps serve as standby units. A Sparling Flow Meter measures plant output.

After considerable study of whether to use lime or caustic soda, it was decided that caustic soda would cause less operational difficulties and practically no handling costs. The caustic soda is pumped from an underground tank to the points of application.

Cost

The total cost of the project came to $661,000. Of this, $137,000 went into pumping facilities and $524,000 into the filter plant. Cost of the filter plant alone, based on 18 mgd, comes to $29,000 per million gallons.

Present plans call for plant operation by a total of three men working on a five-day week basis. Completely automatic controls provide for the service, backwash and rinse cycles. Automatic proportioning pumps eliminate the need for chemical handling.

Present estimates place the total fixed cost of operating the filter plant, excluding chemicals and power for the high-service pumps, at $42,000 per year. Other estimated costs include:

	Per million gallons
Chemicals	$ 3.66
Power, low-head pumps	2.60
Power, high service	[illegible]6.00

Carey and Kramer, Consulting Engineers, handled all design and supervision of construction, and Misco-West Coast of Seattle, Wash., held the general contract. William P. Harper and Company, fiscal agents for the City of Anacortes, arranged the $1,600,000 bond issue covering cost of the plant and other projects. Anacortes officials instrumental in this project include Mayor Raymond Pinson; Frank Kimsey, city clerk; and F. E. Clark, city engineer and water superintendent.

New Technique Lets Cities Score Own Renewal Progress

LOCAL civic organizations can accurately evaluate the adequacy of their community's urban renewal efforts with a detailed scoresheet developed by ACTION—the American Council to Improve Our Neighborhoods. Called the ACTION Urban Renewal Evaluator, the scoresheet is designed so that Chambers of Commerce and other existing or specially organized citizen groups can determine whether or not their community is doing a sufficient job to combat the growth of local slums and blight. The Evaluator also can be used to find out how serious a city's slum or blight problem is and thus it can serve as a warning flag calling for community action in advance of a crisis.

New England Pioneers

Groups in five New England cities are already making plans to use the Evaluator to inventory their local renewal programs. In ***New Britain, Conn.,*** and ***Holyoke*** and ***Somerville, Mass.,*** the local Chambers of Commerce are to sponsor the evaluation work. In ***Springfield, Mass.,*** Future Springfield Incorporated, a civic organization, is preparing to sponsor the work, while in ***Bangor, Maine,*** that city's planning department together with its industrial development agency is to do the evaluation.

The 28-page Evaluator tallies a wide variety of community conditions before the final score is totalled. Besides marking the percentage of local residential buildings that are in good, dilapidated or blighted condition, the survey sheets score, among other data, the existence of local housing analyses, subdivision regulations, the geographical extent of slum areas, the per capita costs of providing municipal services to slum areas, and the number of business failures in declining areas. An all-important last section of the Evaluator scores the effectiveness of the work of the local government in combating urban decay. Factors marked for valuation in this section include: the existence of an urban renewal agency, a planning commission, a housing code with adequate authority for the city to repair dilapidated structures and use tax liens to recover costs, etc.

Included with each Evaluator is a list of suggestions for its use by civic groups. ACTION estimates that a minimum of 25 people will be necessary to complete the tallies. These 25 should be organized into five major committees, each charged with one of the five sections of the Evaluator: Current Housing Inventory; Public Cost of Blight and Slums; Private Cost of Blight and Slums; Social Cost of Blight and Slums; and Urban Renewal Machinery.

ACTION notes that the work of completing each section will be technical enough so that aid from city government personnel in each city is recommended. ACTION also plans to provide representatives to help local civic groups get started on the evaluation process.

As an Aid to City Officials

Planners and other city officials will find the Evaluator of particular interest in the standards which ACTION uses to define certain local conditions. For example, blighted or deteriorated areas are defined as follows: "where 20% or more of the dwelling units or residential structures are in a blighted or deteriorated condition and there is evidence of public neglect in broken sidewalks, bad pavements, inadequate service, poor lighting, inadequate parks, or other adverse environmental factors."

Similarly, ACTION views as unsatisfactory a community where more than 37% of its residential structures are blighted or dilapidated.

ACTION is offering the complete Evaluator kit, which has been copyrighted, at $10 per copy and will arrange with community leaders for on-the-scene assistance in undertaking local studies. Write ACTION, 2 West 46th St., New York 36, N. Y.

Corrugated iron sewers also can be used to advantage. This is an Armco multiplate sewer in Milwaukee, Wis. Note the house connections.

Sewer Design Guides

. . . that occasionally are overlooked

By ELLSWORTH L. FILBY
Black & Veatch
Consulting Engineers
Kansas City, Mo.

SEWER design is not an exact science. It largely is the result of careful review-study of local conditions and the application of engineering judgment. Sewers must have a long, useful life. Unfortunately, they cannot be designed like equipment, subject to periodic replacement. The engineer buries his sewers under six feet or more of earth—out of sight, but never out of mind. The public expects sewers to operate *all* the time.

Before designing any sewer, the engineer must have certain predesign data. For example, he will need to know:

- whether the sanitary sewer will carry away the runoff from roofs and foundation walls.
- whether the homes will have full basement or slab construction.
- whether industries in the area dump their wastes periodically or feed them into the sewer at a uniform rate.
- what new industries will be located in the area.
- whether the area is zoned for single or multiple family dwellings.
- what the soil conditions are and how it is drained; whether any of the area can be permitted to flood temporarily.

Sanitary sewers still need to be designed on a half-full basis. Designs always have been complicated with more unknowns than knowns. In the past, we never were sure of the per capita contribution, ground-water infiltration, or the volume of "bootlegged" rainfall runoff into sanitary sewers from roof downspouts and other areas. Today, factors are somewhat more clearly defined, but we still have no assurance of conditions 50 or 60 years ahead, so to protect the investment, we design smaller pipe units, up to 24 inches in diameter, to carry the estimated peak flows when flowing half-full.

In general, we like to build shallow sewers where the soil is more stable. However, such a general specification has to be balanced carefully against the classic cleansing velocity of 2 feet per second that a sewer should maintain, and the cost of frequent pumping stations.

Sewer Pipe Types

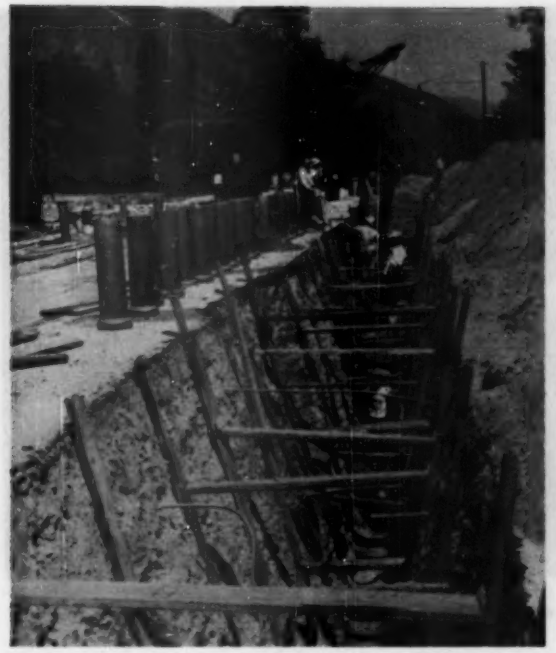
Pipe used for sewers should emphasize resistance to deterioration and long life. For sewers whose maximum size is 30 inches, one can use vitrified clay and asbestos cement. For larger sewers, one can add concrete and corrugated metal pipe. If the sewage has trade wastes that make it aggressive to concrete we can specify plastic linings for the sewer section above the normal flow line, leaving the invert unprotected. The metallic pipe can be protected with asbestos-bitumen linings. For storm sewers, the usual choice is largely precast concrete.

Infiltration is the sanitary engineer's headache. Sewer joints are notorious places where ground water enters the sewer, increasing the bulk of sewage without introducing material needing purifying.

New Jointing Material

To join vitrified clay pipe, most have preferred the hot-poured or cold joint compounds to the older jute and cement mortar. However, the new plastics promise to provide an even tighter, more durable joint. Rubber-ring joints also give a good account of themselves on concrete pipe. When jointing concrete pipe of large diameter, pressure grouting may be found necessary. In every case, one must realize that the best designer's work can be ruined by poor construction and inspection.

The city should make all sewer taps and run the house sewer to the property line. Installation by licensed plumbers is no guarantee of good workmanship since the plumb-



Clay sewer pipe is commonly used for its reliability, resistance to corrosion and long life. An Osgood crane is excavating this carefully cribbed trench in Altadena, Calif.

Concrete sewer pipe is frequently employed, especially for sewers of large diameter. This Link-Belt Speeder is placing pipe for a trunk sewer in the area of Birmingham, Ala.

ers frequently sublet this part of the work.

We no longer must lay a sewer in a straight line between manholes, nor do we have to provide manholes at every change in grade or alignment. The new modern sewer cleaning equipment can travel the easy curves used on street layouts today. Sewers 24 inches and larger need not have manholes as close as we felt necessary in the past.

Manholes themselves no longer should have the metal ladder rungs cast in them. These have corroded easily and became dangerous. It is much better and less costly to provide maintenance crews with short, jointable sections of aluminum ladders. Ordinarily, manhole covers do not need ventilating holes. Large outfalls and interceptors often have to be supplied with forced ventilation to prevent corrosion.

The extra trouble taken to place the sewer properly is money well spent. The trench walls must be vertical for the full diameter of the pipe and of minimum width consistent with making the joint. Trench bottoms should be dry; the use of well points to make them so is fully justified. Trench excavations should go an inch or two below grade and refilled with granular-type material to insure proper supporting embedment and grade. Since hand tamping of backfill appears to have vanished with hand digging, many contractors now elect to make part or all of the backfill with river-run sand-gravel and to jet it in place, selling the excavated material for fill. If the trench must be placed in rock cut, the bedding of the pipe is particularly important.

All pipe must be checked on the ditch bank for broken bells, splits, and out-of-round conditions. Factory checks are not satisfactory.

The handling of clay pipe is most important if the push-type plastic joints are used. Proper stacking is essential to prevent damage to the spigot material.

Finally, the designer of the sewer should not overlook the public relations aspect. Prior to construction, an actual field reconnaissance and mimeographed explanatory sheet delivered to the householders along the route will solve many problems. Protective care of shrubbery and keeping narrow streets uncluttered takes little effort but pays off handsomely.

Municipalities employ modern sewer cleaning equipment, such as this Flexible power unit, to eliminate the requirement cities have for frequent and costly manholes.

PHOTO COURTESY OF MUNICIPAL ENGINEERING

Multipurposed vehicles and bulk containers are being considered for use in Frankfurt.

Sanitation Operations in Frankfurt, Germany

Collection system equal to many U. S. cities of similar size; disposal facilities are below U. S. standards

By A. G. DAVIES
Chief Public Health Inspector
Woking, Surry, England

LAST summer Frankfurt, Germany played host to the International Congress on Public Cleansing. Sanitation officials from many countries, while attending the Congress, had an excellent opportunity to compare Frankfurt's sanitation program with that of other cities.

Frankfurt's City Cleansing Department operates in four sections covering refuse collection, street cleansing, general transport and public conveniences. An administrative staff of 25 people attend to the needs of the work and two principal deputies control the administration and technical sections. This group works under the personal direction of Director of Cleansing Hans A. R. Baumann and his principal assistant Herr Klimpe.

This obsolete salvage plant will no longer be at the dump site. It will soon be replaced by modern equipment that is capable of handling 500 tons of refuse per day.

District Collection System

For collection purposes the city is divided into 50 collection areas, each supplied with a charge hand, one vehicle, a driver, and five other men. In addition, one small township recently included in the area has a division of four districts, each with a charge hand, one vehicle, a driver and three other men. The Department employs one supervisor for every eight to ten vehicles. Industrial collections are handled separately by a crew of 15 men and five vehicles. Actual collection work involves a staff of more than 390 men.

All drivers work on an interchange basis and may be engaged on refuse collection one day, driving the mayor's car the next, and street sweeping another day.

Collection trucks are of the enclosed type and represent an investment of about $18,000 each. Since

Frankfurt's open dump disposal practices do not reflect the high degree of organization and modernization practiced by the city in the area of refuse collection.

1948 the Department has purchased 92 new vehicles, of which 68 are of special design and used for the work of refuse collection.

Excellent Maintenance Facilities

The capital value of depot buildings and equipment exceeds $750,000. The main depot comprises administrative offices, comprehensive machine shops, a stores department turning over $180,000 of material a year, a container repair shop and washing facilities. Entrance to the building is by means of an electrically operated entrance gate.

The stockroom carries five complete sets of spare parts for every vehicle. This involves a stock of about $75,000 in spare parts at any given time. The maintenance shop includes ample inspection pits, all white tiled and well lighted. They are kept spotlessly clean.

Another item of interest is the drivers' school equipped with working models of all the component parts of a motor vehicle. All new drivers pass through this school regardless of their alleged standard of efficiency when employed.

Municipally Owned Containers

Practically all containers in use are owned by the Department, and in 1957 these numbered about 96,000. All are standard 25-gallon receptacles. Container maintenance and repair is of the highest order. A large power-equipped workshop repairs all defective containers with the chief major operation being the refitting of the lower part of the sides and the bottom. Although container costs are written off in a period of 10 years, good maintenance often extends its life up to 20 years at a labor and material cost of approximately $2.

Two special trucks change and deliver containers. All returned containers are first scoured by mechanical washers before being worked over or placed back into service. No charge is made for the containers when supplied.

Containers must be placed near the front of the premises to keep carrying distances to a minimum. No plan for building development can be passed without the cleansing officer's approval of the refuse container site. Rigid enforcement of this regulation insures compliance with the principle of reduced carrying time. In a city subject to almost complete rebuilding the advantages to the cleansing department are obvious.

Bulk Handling

Development of the bulk container system along the American style has come under consideration recently. The Director of Cleansing believes such a system will bring about impressive savings in labor costs and, at present, is trying out the system at hospitals. Multistoried buildings utilize the dry-chute system with the chute kept away from the living quarters in many cases to minimum nuisance from noise.

A direct charge to the taxpayer covers cost of the service with extra charges made for additional collections and the collection of trade waste. Thus, the Department receives an allocated annual sum for operations and the Director has a virtual spending monopoly so long as his expenditures are kept within his income. Expenditures of over $6,000 require the approval of a single councilor.

Poor Disposal Methods

Although this city of 660,000 persons compares favorably with United States cities of similar size in the area of collection, it is substandard when it comes to disposal operations, for all disposal is by means of the open dump.

Dumping facilities are extremely limited and no low sites are available. However, a change over to incineration is now under consideration.

The care shown toward collection is lacking when it comes to disposal. Fires are so commonplace at the dump as to require the maintenance of a well-organized fire-fighting service and a piece of equipment amounting to $9,000.

Fire-fighting procedure at the dump site is highly organized and of necessity is quite elaborate. The dump is out of sight from the city and seemingly out of mind.

The Department awards salvage rights commercially and receives 10% of the income derived from salvage operations. The existing sorting plant consists of a grab, sorting hopper and conveyor belts. Up-to-date equipment capable of handling 500 tons of refuse will soon replace the obsolete machinery that Frankfurt presently employs.

Two-, three- and four-acre zoning in suburban towns and small cities is increasingly popular; here is a discussion of legal, economic and sociological implications of such zoning

The Case for Low-Density

By ROLAND B. GREELEY*
Associate Professor of Regional Planning
Massachusetts Institute of Technology
Cambridge, Mass.

I AM enthusiastically in favor of low-density residential zoning for substantial areas of small cities and suburban towns. I shall demonstrate why I favor such zoning as I answer these three basic questions: ***is large lot zoning legal; do large lots place financial burdens on the home buyer and the municipality; and are there significant advantages to both homeowners and municipalities in encouraging low-density zoning?***

I shall also discuss some disadvantages of the current zoning practice that seeks to obtain low densities of development by requiring a homeowner to place his house in the middle of a vast expanse of ground. I shall discuss some techniques that city officials might consider for eliminating these disadvantages while retaining the benefits of low-density residential development.

In this discussion, I will draw the dividing line between high and low density at something like ¾-acre lots. If I speak of low-density development I refer to areas where the average lot size is an acre or more and the frontage at least 150 feet. If I speak of high-density development, I am referring to *single family* lots with areas of from 6,000 square feet (which I consider minimum) up to half an acre. I am leaving multifamily areas completely out of the discussion.

Is Large Lot Zoning Legal?

I doubt if really low density development as a zoning principle (4 acres per lot for example) will be given *blanket* approval by the nation's courts for some time to come. Municipal officials are well aware that zoning for lots of at least one, two, or even five acres has been upheld by some courts. At the same time the courts have avoided saying how large a minimum lot size can be expected to be accorded legal status.

However, the courts have been pretty consistent in this one major respect when reviewing cases on low-density large lot zones: they have insisted that large lot zoning show some tangible relationship to the health and welfare of the community *as reflected in long-range planning policy*. Thus it appears to me that we can expect the courts to support low-density zoning with greater definiteness in the future wherever such zoning is shown to implement a thoughtful long-range plan for sound growth of the community involved.

Are Large Lots a Financial Burden?

Low-density lots undoubtedly cost more to the home buyer, but the additional cost usually represents a small percentage increase in the total cost of the home.

Let me illustrate a typical situation. Assume raw land costs $1,000 per acre; fully improved streets cost $20 per front foot; minimum "rural" streets cost $12 per front foot; and houses cost $15,000 apiece, regardless of lot size. On this basis, the 80-foot x 125-foot, improved lot costs $1,900. Thus the gross cost of house and lot is $16,900. But take the same standards for a lot 200 feet x 250 feet and the gross cost becomes $20,250, or 20% more.

However, this is only half of the story. The larger lot may well require a less expensive street—no sewer or sidewalks, little underground storm drainage, etc. In this case the gross cost would be $18,600, or only 10% more than the home with the small lot. This is a significant additional burden to the *marginal* homeowner; but the family who really wants a big lot can get it by spending 2% or 3% more of its gross annual income for "rent."

On the municipal side of the cost picture, the municipality gets somewhat greater length of road and water-line per house to maintain but also gets a little more tax income to pay the maintenance. Call it about even. If there are no sidewalks or sewers to maintain, the municipality may even gain. Thus in terms of municipal policy a community can obtain significantly lower densities of development at little or no extra servicing costs and at relatively small increases in total home cost for the property owner. This conclusion is borne out by the very careful analysis of municipal costs in relation to low density residential development prepared by Walter Isard and Robert Coughlin in their recently published book, "Municipal Costs and Revenues Resulting from Community Growth", (Chandler-Davis Publishing Co., Wellesley, Mass. 1956).

A major argument usually presented in favor of large lots is that they tend to be occupied by larger and more expensive houses. To the extent that this is so, the municipality gains because it gets significant increases in tax income per home, with very little increase in operating expenses. If, by increasing lot sizes, the municipality can increase net taxes per family, then it stands to gain financially. But any large increase in average dwelling cost greatly reduces the potential number of homeowners in that market. Extra-large lots may permit a few select communities to be developed only to expensive homes; but this cannot work for a large part of any metropolitan area.

"Are there advantages to low density?" I believe that no one *knows* the conclusive answer to this question.

Most of the arguments presented against large lots are based on economic claims: they are too expensive, too costly to service, too difficult to maintain, too wasteful of land. On the other side, it is argued that man needs open space and trees

* This article is based on address delivered by Professor Greeley at a conference of Connecticut Planning and Zoning agencies on September 11, 1957.

and "natural" surroundings, that children should have ample informal space in which to play, that, in the Northeast at least, natural open space is pleasant even if not maintained, and that thanks to the automobile we have an ample supply of land accessible to places of employment and not needed for agriculture.

To these arguments I add the observation that those families whose choice is based on real preference, rather than on economic stringency, seem to prefer the low densities.

Sociological Implications

However, the sociological implications of the large-lot development must be considered. Is a community strengthened by the more intimate "sideyard friendships," "neighboring," and "visual" contact of the block of small lots? Or can we carry the axiom: "good fences make good neighbors" to the point of saying that space between homes builds more desirable sociological patterns?

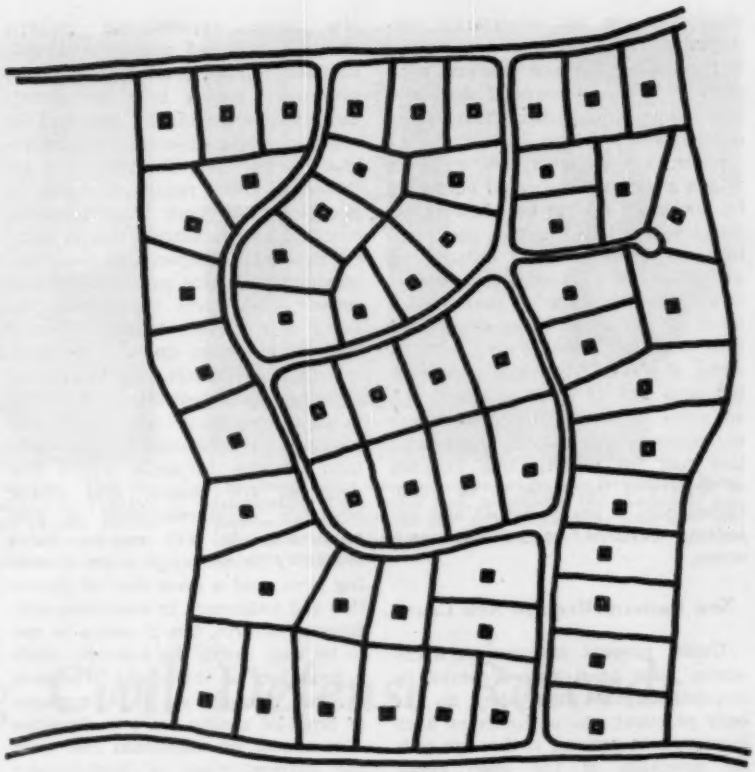
Obviously part of the answer depends upon the types of people involved. But I suspect that the neighborhood of two- to four-acre lots, almost 100% auto-oriented, loses much of the sociological values produced automatically by the more frequent, casual contacts in neighborhoods of ¼- or ½-acre lots.

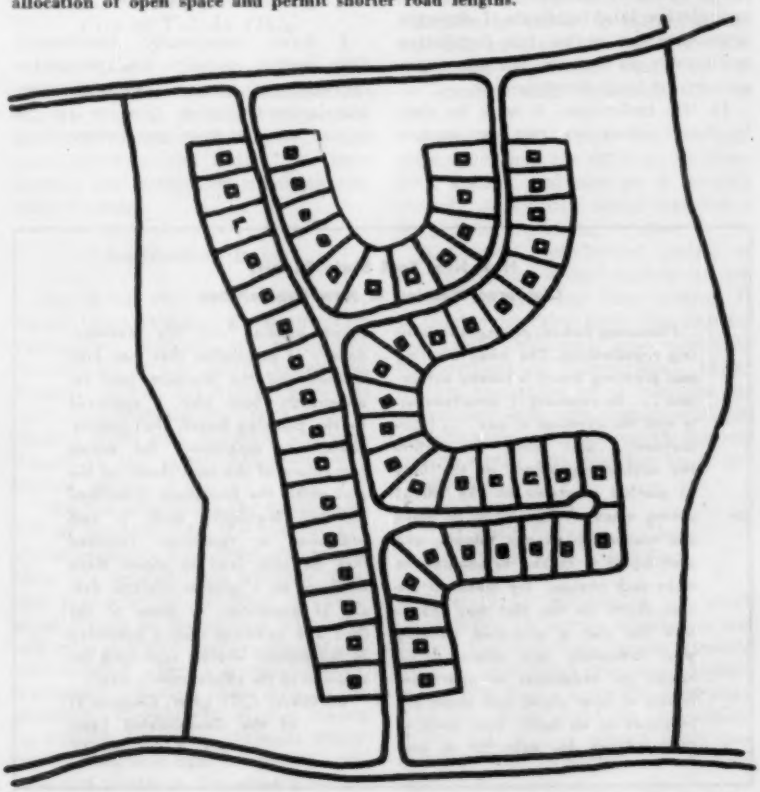
On the basis of the foregoing discussion two conclusions emerge, in my opinion:

1. In suburban areas we should strive for low density, residential development that preserves open-space and natural surroundings; but
2. We should so dispose our houses in relation to such space that the length of roads and services is minimized, and the travel distance between dwellings is short enough to favor "neighboring."

Can We Get Low Density Plus Economy?

Although in today's typical large-lot zoning, these two objectives are mutually contradictory, the two





Current subdivision and zoning ordinances often promote the kind of stereotyped low density lot pattern shown above. Such patterns can present economic as well as sociological problems to both municipal governments and residents. Alternative patterns such as that below should be permitted because they provide a better allocation of open space and permit shorter road lengths.

objectives are not necessarily conflicting. They can both be attained if houses are built in clusters, with each cluster surrounded by, and separated from, other clusters by open space.

There are at least two ways in which such patterns could currently be obtained. One is by allowing relatively small lots and at the same time acquiring areas of public land as "green-belts" around these small lots. Thus, instead of requiring a tract of 100 acres to be subdivided into, say, 80 one-acre lots and 20 acres of street, we might permit 90 half-acre lots, 15 acres of street, and 40 acres of permanent open space surrounding the homes. The result: less cost for streets, less expanse of improved home-site to be maintained, and a really usable and enjoyable expanse of natural landscape.

New Patterns Require New Laws

Under present statutes in many states, such open spaces cannot be required of the subdivider. So the only practical way of enforcing such a pattern at present is through public purchase of the open areas. While in many cases, this might be good economics, it seems impractical under present assessment practices, eminent domain awards, and speculative land holdings. I strongly urge that we revise our legislative machinery so that we can effect this pattern of land development.

In the meantime, it may be that in many cases we can accomplish the same approximate pattern through modified zoning and subdivision control practices. We can, and some zoning laws do, permit deviations from the lot size and lot frontage requirements in a subdivision, if the overall density is retained and the resultant design is good. A New York State planning enabling act permitting this is quoted in the accompanying box. By expanding on this principle we can induce subdividers to lay out patterns of relatively clustered homes and sizable open spaces, either in the form of abnormally large rear lots or as land dedicated to the public or to long-range semipublic management. This should become common practice in areas where low densities are desired and where efficiency of development is also important. It will require some flexibility in the application of zoning laws, and a good deal of discretion and judgement in exercising subdivision control, but it seems to me to be well worth the attempt. Such a procedure as this could, I believe, give us virtually all the advantages of large-lot zoning—of low densities—at almost no additional cost over the current costs of high-density single-family lots.

Can We Keep Acreage Land Open?

I have completely overlooked this major—usually unexpressed—objective of large-lot zoning: forcing large tracts of land to be retained in open-type use rather than going into any type of development. Using the device of large-lot zoning to achieve this purpose is at best unreliable and at worst a devious and unfair use of public power.

It may well be that the development of many tracts of acreage land around our cities should be discouraged. But we must keep this fact in mind: as the pressure to develop such land increases, so does the value of the land, and usually the taxes. But in current practice to prevent intensive development many communities either impose zoning barriers thus placing the owner in an economic squeeze as his taxes rise; or the community is deprived of justifiable tax income when such lands are assessed well below their actual market value in the hope that the owner will refrain from development. In some instances both of these actions are followed.

Needed: Revised Land Taxing

This question of preserving undeveloped areas should be faced directly—by making a concerted attack on both the tax and police power aspects. It would work something like this:

1. We would work out a plan showing those spaces which it would be desirable, from the community standpoint, to have retained in open use.
2. We would assess such lands for the "fair market value," but in two separate assessments: one representing the actual value for the land as presently used; the other representing the growing speculative value of the land, as it becomes increasingly desirable for developed use.
3. We could then collect regularly the tax assessed on the use value—a nominal figure—and defer payment of the tax on the speculative value until that value is realized, in much the same way a severance tax on growing timber is deferred.
4. The result would be, I believe, that the owner could afford to keep his land undeveloped, since his taxes would be so low; but the municipality would reap the benefit of fair taxes on the speculative value of the land at the time when the additional income was most needed and the time when the owner could best afford to pay them.

Such a procedure would require fundamental revisions to our tax—and possibly our planning—statutes. But the gain would be preservation of a highly desirable green-belt, at no hardship to the owner, and with ultimate collection by the municipality of significantly more tax income than is currently realized from our under-assessed acreage land.

How New York State Permits Clustered Housing in New Subdivisions

Planning board, changes in zoning regulations. The body creating said planning board is hereby authorized . . . to empower it, simultaneously with the approval of any . . . (subdivision) . . . plat either to confirm the zoning regulations of the land so platted as shown on the official zoning maps of the city or to make any reasonable change therein, and such board is hereby empowered to make such change. The owner of the land shown on the plat may submit with the plat a proposed building plan indicating lots where group houses for residences or apartment houses or local stores and shops are proposed to be built. Such building shall indicate for each lot or proposed building unit the maximum density of population that may exist thereon and the minimum yard requirements. Such plan, if approved by the planning board, shall modify, change or supplement the zoning regulations of the land shown on the plat within the limitations prescribed by such legislative body in said ordinance or resolution. Provided that for such land so shown there shall not be a greater average density of population or cover of the land with buildings than is permitted in the district wherein such land lies as shown on the official zoning map. . . .

GENERAL CITY LAW, Chapter 21 of the Consolidated Laws, Art. 3, Section 37.

Robot-Kardex unit houses all payroll information. This file is used for verifying the information submitted to Toledo's Civil Service Commission on departmental payroll sheets. The exact card required by the operator is delivered automatically in working position simply by pushing a key.

The classification cross-index file, set up in a Remington Rand Interlocking Tube Index unit, establishes the number of employees on the rolls at any given time, tells who they are, location or class they are assigned and whether they are certified to their jobs.

Simplifying Civil Defense Records

By CHESTER T. ERSKINE
Secretary
Civil Service Commission
City of Toledo, Ohio

IN the operation of a municipal civil service commission, streamlined office procedures are not only desirable but necessary. The City of Toledo's Civil Service Commission administers details covering 2,773 municipal employees. These provide such services as police, fire, sanitation, and maintenance of streets for our population of 361,000 persons.

Responsibilities of the Commission include holding competitive examinations, establishing proper classifications, assignment of employees, and auditing of payrolls. Methods to discharge these responsibilities were recently brought up to date through the installation of a Remington-Rand Robot-Kardex and two Interlocking Tube Index units.

Automatic Card Finding

The Robot-Kardex, a mechanized visible file, is installed in the office where our payrolls are audited after they are made up by the city's individual departments. Reference to these records is accomplished with speed and a minimum of effort aided by a key which, when pressed, causes the desired card to appear in the correct working position.

Slides in which the records are filed are set up by departments, thus conforming with the payroll sheets. The cards are in alphabetical sequence, and at present the records on all 2,773 muncipal employees are maintained in one unit. The new system has eliminated misfiling and loss of cards.

Classification Index

One of our two Interlocking Tube Index units contains a classification cross-index covering all personnel. It consists of our salary schedules, broken down department-wise as well as alphabetically. It is further broken down into classified and nonclassified, the latter indicated by a yellow signal.

This file establishes the exact number of employees on the rolls at any given moment, who they are, where they are located, and whether they are permanently certified to their jobs. Those on the payroll who have not been certified can be singled out and notified when a competitive examination covering their jobs is impending. Conversely, it also serves as a quick reference through which the Commission can determine with ease and accuracy the exact fields in which examinations should be held.

The use of signals further simplifies the use of this unit. A red signal indicates an error in classification; the job involved is not correctly titled, and when next vacant should be studied with reclassification in view.

Blue signals denote that the persons concerned are off duty by their own choice, and are on a nonpay status. An orange signal signifies a known industrial injury case.

A strictly alphabetical listing of all employees is maintained in our second Interlocking Tube Index. It is used most frequently for answering credit inquiries, and verifying employment of individuals. Information contained on it includes appointment date, age, department, job classification, address, where the employee works, and whether he or she is certified.

Credit Reference Clerk Finds Job Simplified

Prior to its installation, the clerk responsible for credit references had to go through voluminous records kept in individual personnel folders in vertical files. Now she need only find the proper card on the visible index, and with a simple hand motion has the required information right before her.

Revolving Fund Financing System

Missouri city of 20,000 *adopts ambitious goal to pave* 23 *miles of streets in* 5 *years*

By ROBERT C. STOREY
City Manager
Ferguson, Mo.

IT took four attempts at the polls, but the citizens of Ferguson, Mo., finally approved what they now recognize to be one of the most progressive improvement-financing systems in the State of Missouri. Due credit must go to a persistent and courageous mayor and council, two public-spirited women, and an awakened citizenry.

On June 25, 1957, by an overwhelming vote of 976 to 170, the citizens approved a proposal to issue bonds totaling $200,000 to finance a revolving fund to pay for public improvements for which special assessments are issued. As a result, this St. Louis suburb of 20,000 people embarked on a five-year program to pave 23 miles of streets, with 5½ miles scheduled for 1957. The completed program will give us one of the finest street systems in the state.

Fund Operation

The $200,000 acts as a municipal bank account from which funds are drawn to pay contractors upon the completion of the various projects. The city, in turn, issues special assessments against property abutting the newly paved street. These special tax bills carry an annual interest rate of 8%, the maximum allowed by state statute, and are payable in five years. However, if property owners so choose, they can avoid payment of interest by settling the bill within 30 days after issuance. The high interest rate encourages property owners to pay assessments immediately. This helps keep the fund revolving.

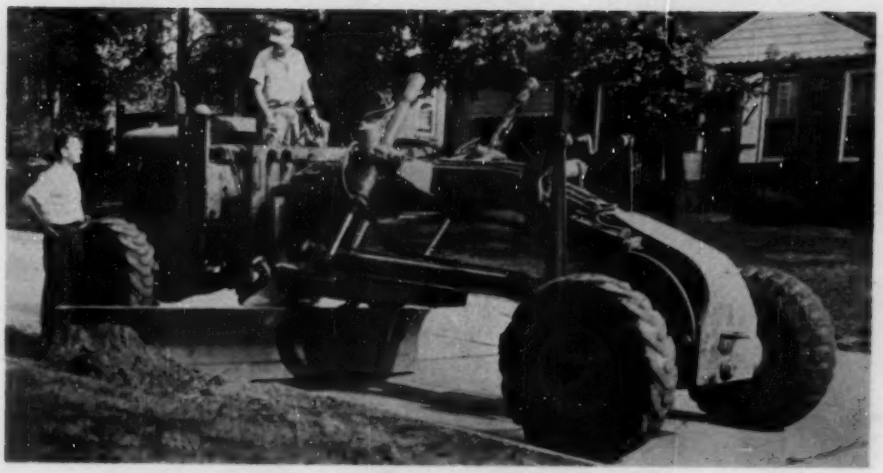
Money paid back into the fund is reused to finance other paving projects or to retire the bonds. Under our program, the bonds will be paid back over a period of 11 years, with the largest payments made in the later years. Interest charges offset the interest paid on the bonds and also take care of administrative costs.

Reduced Prices

This type of financing has the big advantage of economy. Most city officials know the disadvantage of using special assessment tax bills to pay contractors making public improvements. Contractors know they will have to discount the tax bills when they sell to the banks or other financial institutions for needed cash, so boost their bids accordingly where city financing is not available.

This increase in bids may run contract prices up as much as 25%. This premium is, in turn, passed on to the taxpayers in the form of higher prices.

We let our first contracts under the new system on July 22 of this year, with a bid price of $3.40 per square yard for 6-inch concrete pavement, compared to a high cost of



City crews do preliminary grading before paving and also remove excess material (left). They backfill and grade (right) after paving is complete.

Helps Ferguson Pave Streets

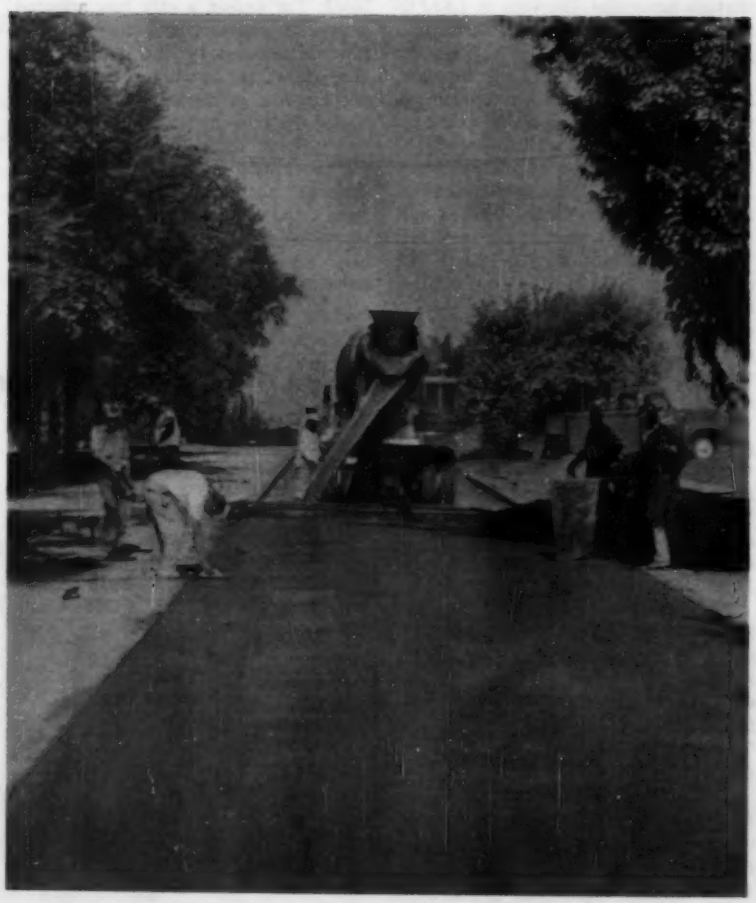
$3.88 per square yard under the old system. Seven-inch concrete pavement went for $3.65 per square yard, compared with former prices as high as $4.18. Even with a slight increase in the union labor scale, the new prices reflect a 10 and 14% saving, respectively.

Municipal Participation

To further expedite the work and help reduce costs, street department crews grade the streets for paving and also handle backfilling and backsloping work, including driveways. Basic equipment consists of a city owned Michigan Tractor Shovel, an Austin-Western motor grader, and several trucks.

The city also bears the cost of engineering and administrative work connected with the paving project. The council feels that reduced maintenance expense resulting from the paving program justifies the contribution.

Mayor Clement E. Helmsing and the City Council recognized the value of a revolving fund some time ago



The basic work is done by contract. Here a Hercules 5½-yard truck mixer mounted on a Ford F-800 chassis delivers concrete to one of the paving projects.

Ferguson's adoption of the revolving fund plan for financing permanent improvements has expedited the improvement of many residential areas through a vigorous street paving program. Citizens are pleased with this arrangement and all the benefits.

and presented it to the voters for the first time on April 3, 1956. Although favorable, the vote of 1,520 to 948 was short of the two-thirds majority required.

A special election on June 26, 1956, resulted in a vote of 916 to 686, much poorer than the previous attempt. The proposition was again presented to the people at the regular election held on April 2, 1957. This time it failed by only two votes—993 for and 499 against.

With three failures, the mayor and council felt the plan had been offered a sufficient number of times, so dropped the issue. Elections are expensive, so they decided any future attempt would have to come at the request of the people.

The request came—and with emphasis. Two housewives, both of whom lived at the intersection of unpaved streets, took up the challenge. Within a few weeks they presented a petition signed by 1,100 property owners. The council agreed, setting June 25 as the election date.

This time the city conducted a hard-hitting educational program, using brochures and pamphlets stressing the point that instead of costing the people something, the new system would actually save them money. This time the proposal passed almost 6 to 1.

Ferguson's street paving program, featuring mostly portland cement concrete pavement, is attracting the attention of mayors, councilmen, and administrative officials of many Missouri cities. Unfortunately, some of these cities face a legal stumbling block, for unless a city has adopted a special charter, and the type of fund is allowed by the charter, the city cannot set up such a fund. Legislation will be needed to make such a plan legal in cities having no special charter provision for it.

The Constitution of the State of Missouri authorizes any city having more than 10,000 inhabitants to frame and adopt a charter for its own local government, consistent with and subject to the constitution and laws of the state. Ferguson adopted such a "home rule" charter.

The system involves no increase in taxes, for the money is loaned, not spent. Property owners whose streets are already paved will not be paying for other streets, but they will benefit from the plan by having better streets throughout the community.

Ferguson citizens are sold on the revolving fund plan, for the benefits are both immediate and long lasting. It is our hope that other cities will realize these benefits and take the necessary steps to obtain them.

New Urban Study Center at MIT

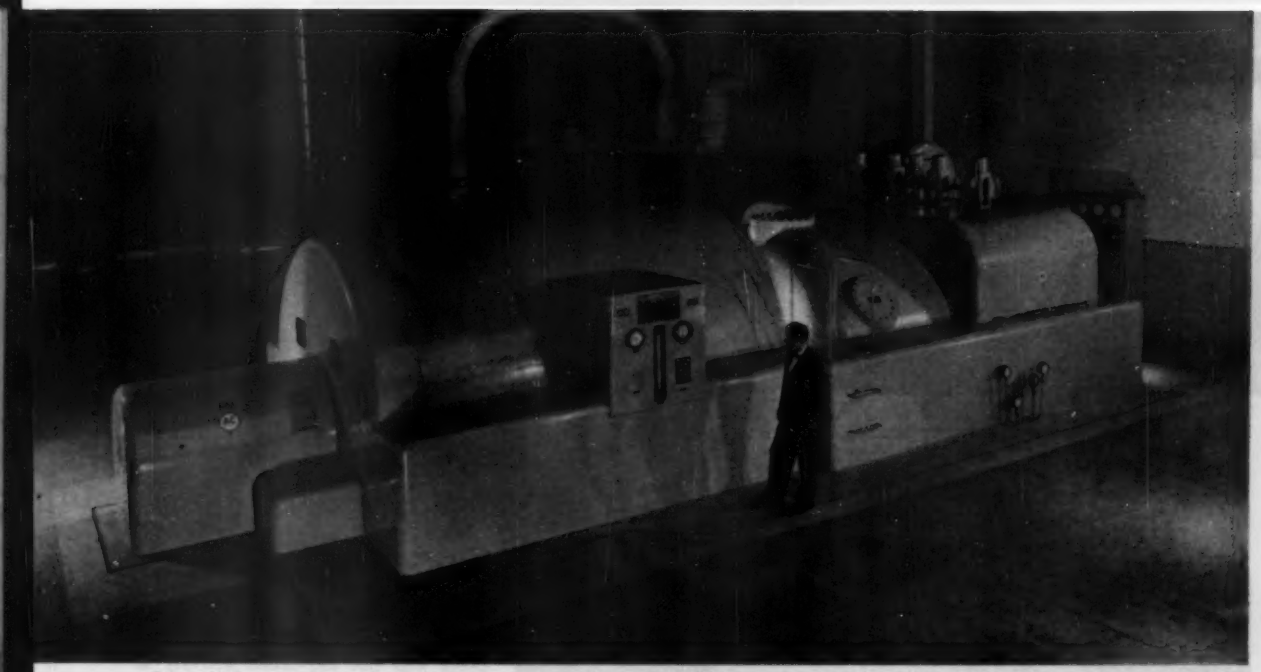
A CENTER for Urban and Regional Studies has been established at the Massachusetts Institute of Technology to undertake a unique program of research on cities and metropolitan areas. The purpose of the center will be to determine what the physical form of the metropolitan region of the future should be and exactly what can be done to bring it about.

Dr. Lloyd Rodwin has been appointed director of the center. Professor Rodwin, an authority on land economics, has been a member of the faculty of the Department of City and Regional Planning at MIT since 1946.

A new approach to the study of the metropolitan problem will be followed in the studies. Some of the most sophisticated mathematical methods pioneered in recent years at MIT are to be used, for Dr. Rodwin believes they may prove just as useful in analyzing the various factors that affect the growth of cities as the computers have helped in probing complex problems in physics and electrical engineering.

The researchers will use MIT's IBM-704 computer. This is the largest and most versatile at any educational institution in the country. It will be used to study alternatives for the movement of goods or people, or to stimulate various patterns of growth or land use. Also to be studied in this way will be future changes that may result from the development of automatic industrial processes.

in the nation. Present residential



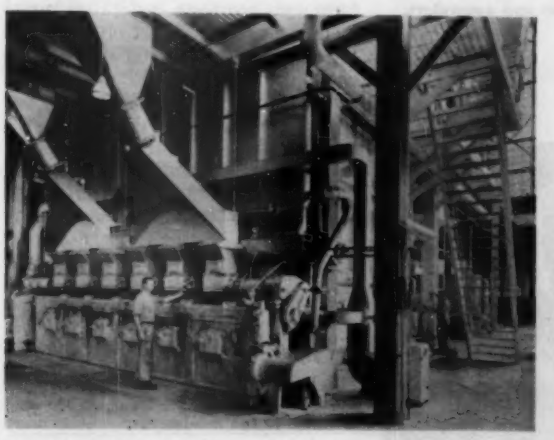
General Manager Cannard checks instruments on the new 22,000-kw generator. Newest 10,000-kw unit is in the background.

Manitowoc, Wis., acts as engineer and general contractor on six-year program that tops off . . .

A Quarter Century of Power Expansion

By R. E. CANNARD
General Manager
Manitowoc Public Utilities

FOR six years the electric division of Manitowoc (Wis.) Public Utilities carried out a progressive expansion program, during which time there was continuous physical construction going on, as well as some equipment on contract. That program has now been completed, and on January 12 and 13 of last year the Utility Commission held open house, so that all Manitowoc citizens could see electric power in the making in their own generating plant.



A 175,000 pounds per hour Wickes boiler with Detroit stokers and Bailey controls supplies steam to the turbo-generator at 850 psi pressure and 900 degrees temperature.

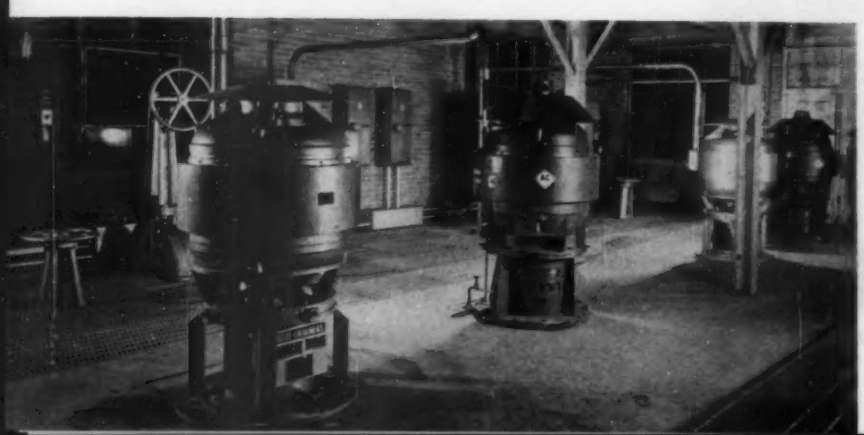
The original plant, built with private capital by the late John Schuette in 1899, consisted of four 20-kw Edison bipolar-type generators, belt connected to Corliss-Allis steam engines. Boilers in a local flour mill supplied steam to the engines. The city purchased the plant in 1914 for $137,500 plus interest, bringing the total to $146,000. At that time the plant had a generating capacity of 810 kw and served 1,999 customers. The electric rate for lighting was 12 cents per kilowatt hour.

Since acquisition by the city, the utilities paid back the original investment and, in addition, over $3,300,000 in appropriations to the general fund and city taxes. Last year the Public Utilities paid well over $155,000 in city taxes—more than the original purchase price of the electric utility.

The cost of power to the customer has come down considerably over the years, and Manitowoc citizens experience one of the lowest electric rates

The new generators operate at 13,000 volts; the older units operate at 4,160 volts. Distribution switchgear is required to handle both voltages.

This new building was constructed to house the two new boilers and generators.



These electric motors drive pumps capable of delivering a total of 32,000 gpm of water to the condensers.

in the nation. Present residential rates are:

Fixed charge of 60c per month plus
—2c per kwhr. for the first 100 kwhrs.
—1.5c per kwhr. for the next 300 kwhrs.
—1.2c per kwhr. for all over 400 kwhrs.

The Utilities are operated as a separate department of the city on a business basis, paying all debts out of earnings. According to the most recent count, service extends to 11,000 customers.

Two Units

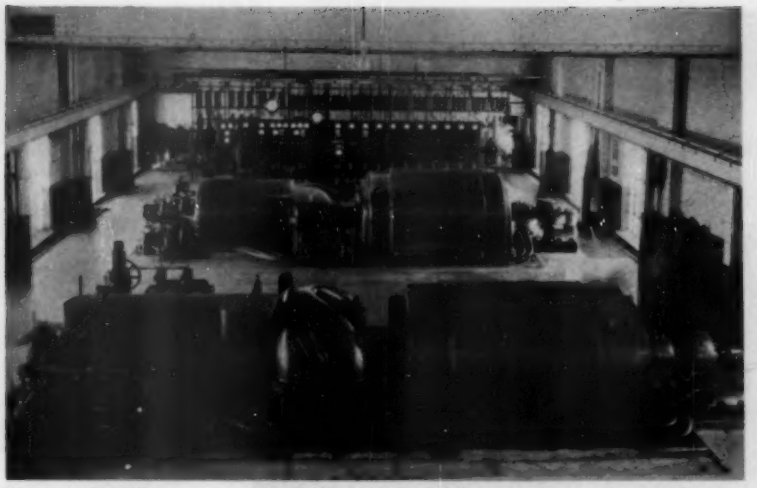
The new addition, started as a progressive program in 1950, is a complete operating unit. Since we did our own engineering and acted as general contractor on the job, it was necessary to space the various items over a period of time so that there was not too much activity at any one time, but still constant progress toward the ultimate goal.

First came construction of the new turbine room building and new lake intake for condenser cooling water. While this was under way we let contracts for a 10,000-kw controlled extraction turbine to operate at 400 psi and 750° F. temperature. This was tied to an old boiler until the new 150,000 pound per hour boiler was installed in the new boiler room. This work also included coal unloading equipment, ash disposal system, and a 250-foot concrete stack. About the same time complete switchgear and most of the station power equipment was installed.

The aforementioned work was immediately followed by installation of a 175,000 pound per hour boiler to furnish steam to a new 22,000-kw standardized straight condensing turbo-generator at 850 psi and 900° F. controlled superheat. The two new Wickes boilers and Allis-Chalmers generators with auxiliary equipment form two complete generating units independent of the rest of the plant.

On the newest turbine we eliminated the use of steam evactors on the condenser and are the first to use vacuum pumps on this size unit. We are also one of the first in the country to use the selenium rectifiers for improved generator excitation in place of the direct connected d.c. exciter.

At present we have two 5,000-kw turbo-generators, installed in 1930



These two 5,000-kw units were the first of five turbo-generators to be installed in the Manitowoc plant. One was installed in 1930, the other in 1935.

and 1935, two 10,000-kw units, installed in 1941 and 1951, and one 22,000-kw generator completed in 1956. Besides the two new boilers, steam is generated by two 60,000 and one 90,000 pound per hour boilers at 400 psi and one 12,000-pound unit at 450 psi. These were installed in 1930, 1937, and 1948, respectively. All generators are Allis-Chalmers units and all boilers were furnished by the Wickes Boiler Company.

The two new generators operate at 13,800 volts while the older generators operate at 4,160 volts. To facilitate the use of higher voltage on the distribution system, it was necessary that we install a series of substations throughout the city. Two 3,000 kva Allis-Chalmers units were installed in 1952 and two 1,500 kva General Electric units went into service in 1956. We are constructing another General Electric unit of 2,000 kva rating.

Table I
Power Plant Construction Cost Analysis
of
a 10,000 KW and 22,000 KW Unit

Turbine Room and Intake Buildings	$ 289,621.46
No. 4 Turbine Condenser and accessories	598,576.37
Switchgear, Transformers and acessories	283,798.81
Boiler room building	142,656.50
Coal Handling equipment	193,835.21
No. 2 Feed Water Heater	24,970.18
Concrete Stack	99,970.86
No. 5 Boiler and accessories	364,929.55
Ash Handling equipment	39,188.04
Lake Intake	251,051.77
Building improvements	7,910.34
No. 6 Boiler	768,603.30
Coal Handling additions	15,883.02
Ash Disposal additions	5,449.18
Feed Water Pumps, Heaters, and accessories	128,159.09
No. 5 Turbo-Generator and Auxiliaries	930,226.37
Condenser and Auxiliaries	168,330.29
Switchgear additions	12,780.06
Station Power and Misc.	24,769.20
Total	$4,350,709.60
Less Book Interest	214,755.49
Actual Cost (32,000 KW)	$4,135,954.11
Book Cost—(32,000-kw plant)	$4,350,709.60
Actual Cost—(32,000-kw plant)	$4,135,954.11
Cost/KW—Book Cost	$ 135.96
Cost/KW—Actual Cost	129.25

Cost Analysis

All equipment recently installed is of the very latest design and highest efficiency possible, despite the fact that it was installed at a total cost far below that of similar plants being constructed throughout the country. Table I gives a breakdown of the costs for the various units making up the latest addition to the plant, the total cost, and the cost per kilowatt. As of December 31, 1956, the electric plant had total assets of $9,339,190.89 and an in-service plant value of $8,269,105.83.

The recent relighting of downtown Manitowoc offers visible proof of benefits from well planned expansion of power facilities. The change-over from incandescent to fluorescent street lights was made possible through the foresight and ability of both the city officials and the Manitowoc Public Utilities.

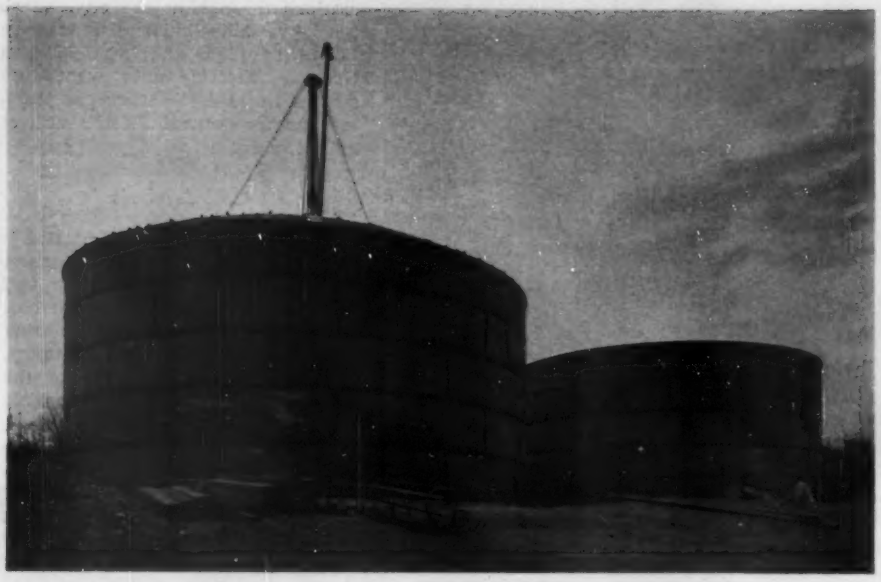
A five-man commission operates the Manitowoc Utilities through a general manager. The Common Council appoints one man each year to serve a five-year term. The present Commissioners are M. W. Mrotek, president, L. F. Fischer, L. J. Kaufman, John D. West, and Francis Rugowski. The Honorable Walter Koepke is Mayor of Manitowoc, and Alderman O. L. Anderson is Chairman of The Utilities Committee of The Common Council.

334 Airport Projects

THE Civil Aeronautics Administration reports that the U. S. program to modernize and improve the nation's airports is moving along in high gear.

During the four-month period from July 1 through October 31, 1957 the Civil Aeronautics Administration made grant offers in connection with 135 projects totaling $19,151,152 in federal funds. That sum represents less than half the total funds obligated for airport improvement, since the local sponsor in each instance provides a sum at least equal to the federal contribution.

A total of 334 projects has been approved for the fiscal year of 1958. Total federal funds for the year are $55,035,226.



The erection of two 1,000,000-gallon steel tanks gives Boyertown a four-day supply of treated water.

Farsighted community takes action to develop auxiliary supply for future needs and satisfy present demands for . . .

Adequate Water

By ROWLAND A. READ
Borough Manager
Boyertown, Pa.

BOYERTOWN, Pa., can be classed as a small industrial town (population 4,600) with a history of small but steady growth and a future that is expected to follow somewhat the same pattern. Its industries, though small, are diversified, and include clothing manufacturing, a casket factory, a hosiery mill, a dairy, an electric concern, and a truck body plant—to mention only a few.

Although we experienced no sudden water problems, the process of normal growth plus increased per capita use of water began to strain our water system. Then too a report prepared by the Middle Department Association of Fire Underwriters, as the result of a major fire in Boyertown, stated that the existing water system had insufficient water to handle a fire of magnitude and that facilities to deliver 3,400 gallons per minute would be required to properly meet the demand of the business and industrial areas of the borough. These conditions led the Borough Council to engage the firm of Glace & Glace, Inc., Consulting Engineers of Harrisburg, Pa., to prepare a preliminary report with recommendations for the proper and most economical method of providing an adequate supply.

Recommendations

Our engineers, after thoroughly studying the problem, made the following recommendations:

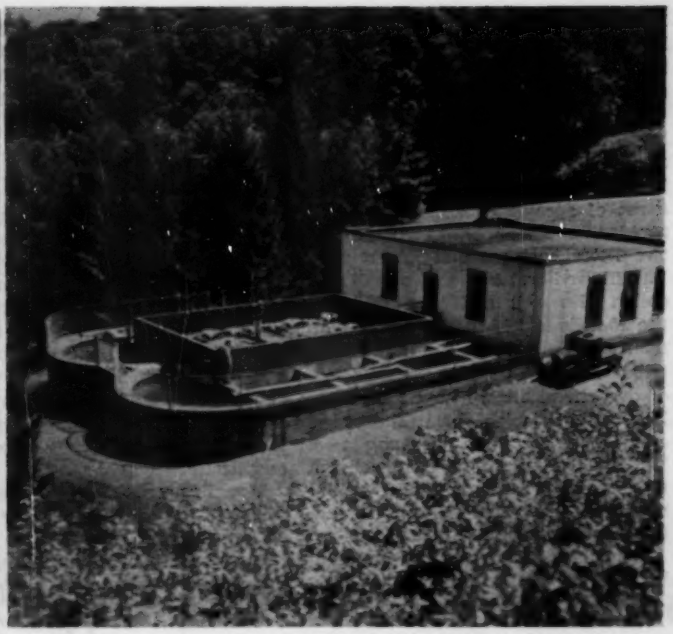
1. Construction of finished water storage facilities to provide a minimum three days' supply
2. Construction of several 12-inch mains from the reservoirs to key points in the distribution system
3. Consideration of an auxiliary supply for future use.

The report stated that if adequate finished-water storage be provided, no changes would be needed in the collection or treatment portion of our water system at this time.

Our present sources of supply consist of an impounding reservoir on the South Branch of Ironstone Creek, and several springs in the same area, all located about 3 miles west of the borough. The reservoir covers about 7½ acres, has a capacity of 35,000,000 gallons, and is about 255 feet above the minimum elevation of the borough. The reservoir's catchment area of 0.46 square miles produces a safe yield of about 500,000 gallons per day.

An auxiliary pumping station is able to deliver raw water from Ironstone Creek to the reservoir. This supply also has a safe yield of about 500,000 gallons per day, giving us a total supply of about 1.0 mgd. Present requirements, including leakage and plant operation, average about 500,000 gpd.

Personnel required to operate the filter plant consists of Ralph F. Gottshall, water commissioner, and Jacob H. Rothenberger, Jr. and John A. Tim, filter plant operators. These three are also responsible for operation and mechanical maintenance of



(Left) The two filters, each rated at 500,000 gpd, can adequately handle present requirements, and should be good for quite some time. Present water use for all purposes averages about 0.5 mgd. (Right) The spray aerators and rapid-mix basins.

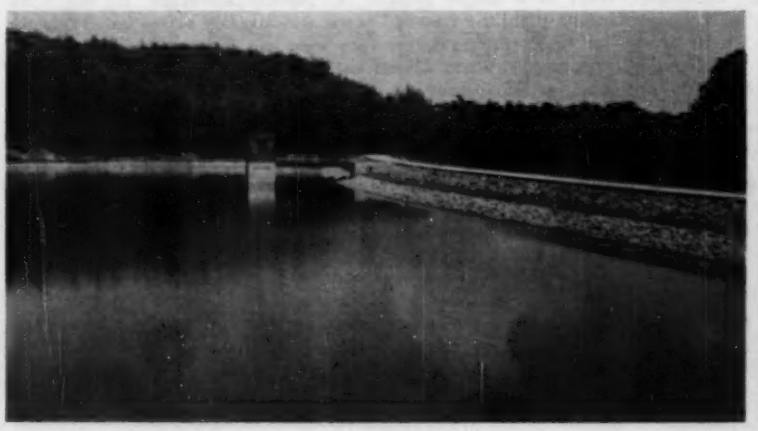
Through Increased Storage Capacity

the borough's sewage disposal plant and several pumping stations. Watershed maintenance and general maintenance of a nonmechanical nature is performed by the borough's Street Department personnel under the supervision of Herbert F. Schultz, street commissioner.

New Construction

To provide the necessary storage capacity, we decided to construct two steel, ground-level storage tanks, each of 1,000,000 gallons capacity. Our engineers were fortunate in locating an ideal site for the tanks on Gable Hill just beyond the extreme southern boundary of the borough. These tanks, erected by Pittsburgh-Des Moines Steel Co., have a base elevation of 545 feet and an overflow elevation of 577 feet. This meant they would be low enough to be served by gravity from the treatment plant and high enough to provide the required water pressure and quantity to the business and industrial areas.

The program also called for considerable water main construction to connect the reservoirs to the distribution system and to strengthen the system in general. All told, we added about 3,750 feet of 8-inch, 2,840 feet of 10-inch, and 6,730 feet of 12-inch cast-iron main. To further improve conditions, we added a new transmission main from the treatment plant to the edge of the borough. This consists of 9,987 feet of



Main source of supply is this 7½-acre, 35,000,000-gallon capacity reservoir impounding water from the South Branch of Ironstone Creek and several springs.

16-inch cast-iron pipe. United States Pipe & Foundry Co. of Burlington, N. J., supplied the pipe for this work.

With the exception of our auxiliary raw water supply, the entire system operates by gravity. Water from the reservoir first flows through a set of spray-type aerators to the rapid mix basins and then to the two filters, each rated at 500,000 gpd. The filtered water flows to a 67,000 gallon clearwell and then through the 10-inch and 16-inch transmission mains to the storage tanks and distribution system. For the addition of dry chemicals we have two Wallace & Tiernan dry chemical feeders and for chlorination we have two W & T chlorinators. To control taste we add ammonia and, when necessary, activated carbon around the aeration sprinkler heads.

The plant and reservoir, designed by William H. Dechant & Sons, was constructed from 1926 to 1930 and placed into service in 1930. The Roberts Filter Mfg. Co. installed the filters, one of which was rebuilt in 1955.

Long-Range Plan

Although the existing supply can serve the borough for many years to come, the engineers recommended long-term development of an auxiliary supply. By constructing a dam in a neighboring watershed and acquiring or controlling all the area in this watershed, we can develop a supply that will meet the requirements of the customers without treatment of any type, other than sterilization by chlorination.

The Borough Council recognizes the need for additional water in the future and also realizes the advantages of acquiring a supply that does not require treatment. Consequently, the borough has already acquired land on another watershed immediately across the divide from the existing watershed to provide this auxiliary supply, and will continue to develop this supply over the years.

We handled the recently completed work through three basic contracts. John W. Kugler, Royersford, Pa., held Contract I, which provided for construction of foundations, piping and appurtenances for the reservoirs, and amounted to $24,830. Contract II, in the amount of $79,200, was awarded to the Pittsburgh-Des Moines Steel Co. of Pittsburgh for construction of the two steel reservoirs. All main work constituted Contract III, amounting to $209,102. This was done by the Kirk Construction Corporation of Lemoyne, Pa. Glace & Glace, Inc., handled all design and supervision of construction.

What Is a Good Planning Board Member?

By HERBERT H. SMITH
Executive Director
Community Planning Assoc. Inc.
Princeton, N. J.

WHAT is a good planning board member? What kind of person should he be and is that any different from what he actually is?? Since few of us ever develop into the kind of person we ought to be for any job, part of that last question is easy to answer. That is not the whole story though, for I am convinced that a lot of us take this business of serving on a planning board altogether too lightly. In the past, comments have been rather critical of some zoning boards and their irresponsibility. The question now is: "Can planning boards and their members stand up any better under examination?"

Who Should Be Planning Board Members?

Generally, there is a lot of good work being done by planning boards. There are a lot of them, however, that leave a lot to be desired in what they do and even in how they go about their job. This results from two things in most instances. The first of these is a careless or inefficient governing body that gives little support to planning and places inadequate personnel on the board. The second is the basic failing of the individual to fully accept responsibility and to try to do the best job possible. Who makes good planning board members? The answer is almost anyone of better than average intelligence who is willing to really try to do a job.

Watch Out For These

It is much easier to say who should not be on a planning board than who should. Numbered among those who shouldn't, are:

1. The politically ambitious—always anxious to please everybody.
2. The "self-styled expert"—he knew it all before, and he certainly isn't going to learn now.
3. The "vested interest person"—he may know more about road building than anyone else in the state, but if he is selling blacktop to developers locally, the very potential of criticism is dangerous.
4. The B.M.I.C.—as the "big man in the community," he will be too busy to do the job right and will want to influence too many decisions.
5. The legal eagle—this doesn't mean every lawyer by any means, but it does mean the one that thinks that planning and zoning are "just legal matters" not to be understood by the "layman."

Can Members Be Found?

This list could be supplemented and might even get to look like there was no one left. Such is not so, however, for any community that is careful can find solid and sound citizens willing to work and to learn in order to do a good job on the planning board. It is better to have a board full of uninformed, but sincere citizens than to have a theoretical high level board not interested or too busy to do the job. Frequently, it is found that because this is not done, one or two members who do want to do a job are frustrated and discouraged and ultimately resign. We should all examine ourselves and our boards and weed out the "culls."

The Job of the Chairman

It should also be stated that in many cases a planning board can succeed or fail because of the chairman. No agency goes without a "sparkplug." The chairman is the heartbeat of the board and has a bigger responsibility in the planning function than in most others. It isn't simply a matter of presiding at one meeting a month and keeping everybody happy. It's setting the pace for program and progress; it's making certain the interests of the entire community are represented; it's "needling" the politicians for money and support; and it's a thousand and one things of equal importance. I have recently been in two zoning cases where the success or failure of a zoning change almost solely rode on the intelligence of the case presented by the testimony of the planning board chairman. The chairman who is not willing to lead and to insist on progress is not doing his job properly, and, in turn, this will reflect in the results of the entire board.

itself. When many of these facilities

Cincinnati's expressway system with its connections to the interstate highway system.

Flow and Parking Plan in Cincinnati

MUCH street and highway construction was under way in Cincinnati, Ohio, and much more was completely planned, before the passage of the Interstate Highway legislation. Relief of traffic congestion has been a continuing project in the city. The three accompanying maps show the aspects that are vital to the central business district.

Respectively, they show the expressway system with its connections to the Interstate System; the existing off-street parking facilities; and DeLeuw-Cather recommended additional parking sites adopted from the Cincinnati Parking Study.

Interstate Highways

Interstate highways in the city are the Mill Creek Expressway, Northwest Expressway, Northeast Expressway and the Third Street Distributor. The map shows the Mill Creek Expressway connecting to the Northwest Expressway, and the connection between the Mill Creek and the Northeast Expressway. It has been charged that these expressways will knife into the heart of the city. The map does not show them ripping across the business district, but running into the Third Street Distributor, an entirely new connecting facility, built to modern standards.

As in almost all cities until the present traffic era of comprehension, parking facilities occurred and were spotted wherever business looked good or space was available in the Cincinnati business district. Where such facilities are located all over a district, it follows that there will be a great deal of automobile traffic to and from parking places. This is some unconstructive congestion in

Existing off-street parking facilities in Downtown Cincinnati.

itself. When many of these facilities furnish all-day parking for workers in the business district who come in and leave around the same time, the likelihood of traffic congestion and jams and public transit delays are obvious.

Many of the facilities represent private industry and can hardly be abolished. Wisdom suggests that no more long-time parking lots and garages be licensed within the inner core of the business district. A system of streets forming a ring around the business district, along which long-time parking facilities are being located is in existence and includes a pair of one-way streets on each side of the core area. The streets included in this system are Ninth Street westbound and Seventh Street eastbound, on the north side; Plum Street southbound and Elm Street northbound, on the west side; Fourth Street westbound and Third Street eastbound, on the south side; and Broadway northbound and Sycamore southbound on the east side. With certain specific exceptions, the municipally sponsored off-street parking program favors locations served by this loop street system, and most recent private parking developments have also been so located.

Recommended parking sites adopted from the Cincinnati parking study.

Brigham Young—City Planner

By NEWELL KNIGHT*

SALT LAKE CITY, Utah, is notable for its wide streets. How they came about is a tribute to its city planner, Brigham Young, and his sound planning principles.

On July 28, 1847, Brigham Young instructed Orson Pratt to take eight span of oxen and covered wagon and trailer to make a series of turns to determine how much space would be needed for them to turn completely around. From this came the ample 132-foot width of the streets near the Temple grounds. This is documented by Robert Campbell, first City Recorder, Book A, 1851. Noted, too, was the request by Brigham Young that all be rebaptized and rededicated because of the strong language used by the wagon masters during the journey to this valley.

Many say that the streets in Salt Lake City are patterned after the streets in the City of Enoch, or that their design was a special revelation to Brigham Young. However, he never made such a claim. Undoubtedly he based his decision from his experience building the towns of Kirland, Ohio; Nauvoo, Ill., Kanesville, Iowa, and Florence, Nebraska.

The early settlers did not plant trees until ordered by city ordinance to plant 27 trees on every corner lot and nine trees on all other. City Marshall J. C. Little was appointed tree watcher to insure compliance.

An example of Salt Lake City's well-planned streets.

* Mr. Knight is the author of "Mormon Town."

The new primary digester (left) and control house (center) were located adjacent to the existing square digesters (right).

Not a Drop Wasted

Ephrata, Wash., purifies its sewage, using the effluent to irrigate nearby cropland

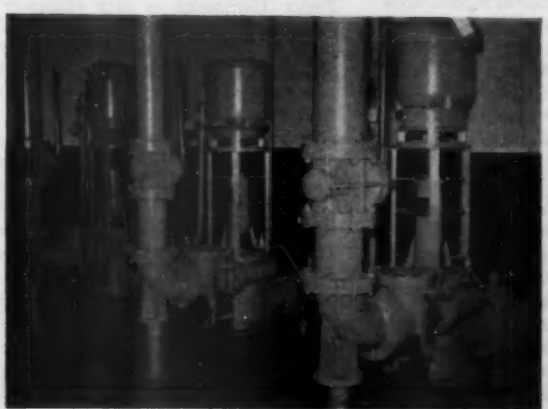
By WILLIAM E. JOHNSON
Mayor
Ephrata, Wash.

EPHRATA, Wash., the county seat of Grant County, occupies an area where water is hard to get. Consequently, everyone makes full use of it. Located in the north central portion of the United States Bureau of Reclamation's Columbia Basin Irrigation project, it serves as the headquarters for the project and is experiencing rapid growth for a small city. In 1930, it had a population of 516 persons; in 1940, 951; and in 1945, 1,873. By 1950 the city had grown to 4,589 persons and in 1956 our population exceeded 7,100. The irrigation project has a potential of over 1,000,000 irrigated acres, and as more farmland is put under irrigation, growth will continue. Roughly, another 10 years will be required to complete the irrigation construction work of the Columbia Basin, fully utilizing the irrigation potentials of Grand Coulee Dam and the Columbia River.

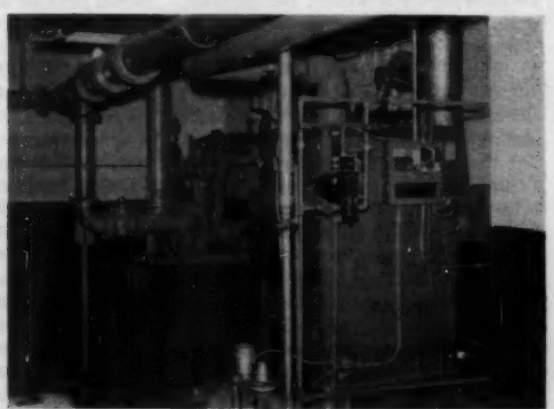
Existing Plant Enlarged

In 1948 the city constructed a primary sewage treatment plant with a design flow of 0.5 mgd and a design population of 6,400. This consisted of a lift station, primary clarifier, primary and secondary digesters, and a leaching pool for effluent disposal. The absence of watercourses in the near vicinity of Ephrata makes the practice of land disposal of all sewage effluent necessary.

During the spring of 1955 sewage flows averaged 0.52 mgd with maximum flows of 1.02 mgd. Knowing



Three of the pumps lift sewage from the wet well to the treatment units. Note plug valves on suction and discharge lines.



Live steam, injected into the digesters by these thermostatically controlled boilers, keeps them at optimum temperatures.

Three lagoons provide final purification making effluent suitable for irrigation.

that increased flows were sure to come, the city authorized the firm of Gray and Osborne, Consulting Engineers of Yakima, Wash., which handles all its major utility construction, to prepare an engineering report on an enlargement program. This investigation led to the construction of an enlarged plant designed for an anticipated population of 14,275 persons by 1980. The design allows for infiltration of 0.1 mgd and an industrial load of 0.5 mgd, with a total design flow of 2.0 mgd average and 4.0 mgd maximum flow.

The plant is located about 1.5 miles from the corporate limits on 120 acres of city-owned land. The engineers' investigation showed that the most thrifty purification method was primary settling, followed by lagooning of the effluent.

Headworks facilities consist of a gravity grit chamber controlled by a 6-inch Parshall flume and equipped with a Link-Belt grit collector and elevator; a Chicago Pump, 24-inch Barminutor; and a Stevens Recorder, Type "B" flow meter connected to the flume. The flow channel is 9 feet below ground-surface. A second channel was also installed for future use, to incorporate a second Barminutor, grit collector and grit elevator.

Pumps

Four Chicago Pump vertical, pedestal-mounted, nonclog pumps transfer the sewage from the 30-foot x 7-foot x 6-foot (maximum liquid level differential) wet well to the new clarifier. The pumps are rated at 500, 750, 1,000, and 1,250 gpm against a total head of 43 feet. A Healy-Ruff "Bulletin 940 Roto-Trol" controls the pumps, automatically keeping at least one pump running during a flow range of 500 gpm to 3,500 gpm. We used Nordstrom plug valves in both the suction and discharge lines of the pumps. Sedimentation takes place in a single 55-foot diameter Process Engineers Inc., Type "C" clarifier having a sidewater depth of 9.0 feet.

The enlargement program called for construction of a primary digester, and utilization of the existing two digesters as a secondary unit and a sludge storage tank. This gives a sludge-storage capacity of 12,300 cubic feet. The new digester, 40 feet in diameter with a 20-foot side water depth, adds another 25,150 cubic feet of digester capacity. It has a domed concrete roof and is heated by live steam injection from a thermostatically controlled Kewanee steel boiler of 210,000 BTU capacity. Sludge recirculation is accomplished by a 4-inch, 500 gpm Wemco torque flow solids pump.

Effluent Utilized

The clarifier effluent is first sterilized by a Wallace & Tiernan automatic chlorinator and then discharged to the lagoons. Presently we have three lagoons with a total surface area of 10 acres and an operating depth of 4 feet. Another 30 acres of water surface is available on city-owned land for additional lagoon area when needed. Design of the lagoons is based on a maximum loading of 75 pounds BOD per acre per day. The present loading is approximately 30 pounds BOD per acre per day.

A local landowner, under contract with the city, uses the lagoon effluent for irrigating his 80 acres of farmland, thus utilizing the plant effluent to the fullest extent. Hay and corn are the principal crops grown. The farming operations are sanctioned and supervised by the Washington State Department of Health.

The primary treatment plant ahead of the lagoon permits effective disinfection of the liquid before its use as an irrigation supply and decreases the BOD loading of the lagoons to eliminate unpleasant odors that usually emanate from lagoons loaded to over 150 pounds BOD per acre per day.

The sludge is dried on open beds having a total area of 15,000 square feet. The city uses the dried sludge as a soil conditioner on local parks and sells the surplus to local residents.

All instrumentation is located on the Westinghouse main power panel located in the new operating house. A Brown strip chart electronic potentiometer and three pen recorders register the temperatures of all three digesters. Running-time meters on the lift pumps enable the operator to set up a maintenance schedule using hours of operation as a basis.

In case of power failure, a 25-kva, 240-volt, 3-phase, 60-cycle Onan electric generator takes over the load. The generator is connected manually through double throw switches to the lighting circuit, Barminutor, and lift pumps.

Financing

We handled financing through a 20-year, $265,000 revenue bond issue to be repaid by the monthly service charges levied against the water and sewer system users. Total cost of the plant came to $224,000. The balance of the money covered a small addition to the water system and the project overhead costs, including engineering, legal, and financing expenses. Rate increases were not required, for the existing service charges were sufficient to cover the interest and principal payments of the 20-year bond issue.

Gray and Osborne handled design and supervision of construction; Ruud Construction Co. of Spokane held the general contract, and Murphy Brothers of Spokane excavated the lagoons. Bruce Allen Electric of Ephrata did the electrical work.

Peder Hemstead is city engineer and Jay DeVorss serves as plant operator. Milton J. Westin, of Gray and Osborne served as project engineer.

Mayor Donates Entire Salary

THE Kansas League of Municipalities reports that the swimming pool fund for Bucklin, in that state, received a boost when Mayor Clyde Voshell offered to donate his entire mayor's salary.

Mayor Voshell received $1 per year for being Bucklin's chief executive.

Engineers William F. Waller (left) and R. H. Warwick make a field check of construction details.

Jumbo-size, 38-foot shoulders on both sides of the roadway provide access to adjacent properties, and parking for those who wish to bathe or fish.

King-Size Road Shoulders

. . . protect beach areas in Ocean City, Md.

A LOW-COST paving operation is helping to spark widespread improvement of an underdeveloped beach area north of Ocean City, Md.

The problem, which for years had retarded the full development of beach property along a 7¾-mile stretch of state highway, was that only a 24-foot center section of this road was paved. The state's 50-foot right-of-way on either side of the highway consisted entirely of beach sand. This blocked access to desirable properties on either side.

On the proposed paving project, now completed, the State Road Commission determined to provide property owners with ready access to their land and to develop shoulder parking areas for motorists to use while bathing or fishing.

The obvious approach to the job—paving full width—was impossible because of limited funds. In 1954, the State Road Commission attempted to stabilize the sand with clay; however, wind and erosion quickly returned the stabilized areas to the more natural unstable state.

The Commission then called in technical representatives of the American Bitumuls & Asphalt Company, 200 Bush St., San Francisco, Calif., to aid in drawing up recommendations for salvaging the sand-clay stabilization because of the company's experience in this type work.

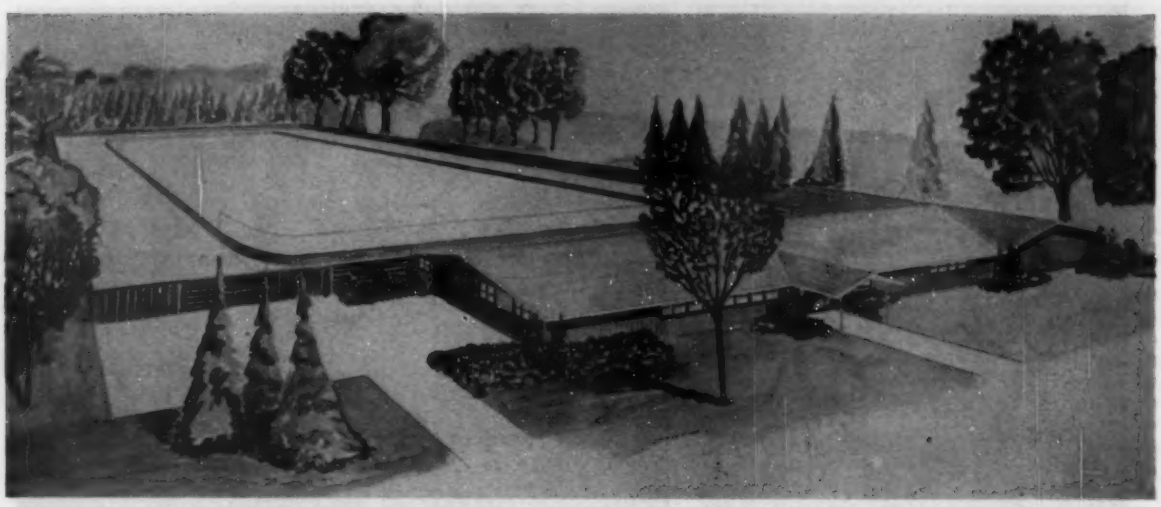
Specifications, as developed by ABACO engineers and engineers of the State Road Commission, called for adding a 38-foot stabilized shoulder to both sides of the narrow hot-mix center section, surfacing the entire 100-foot width. To provide maximum use from the shoulders at minimum cost, engineers specified a double surface treatment of emulsified asphalt using 1 gallon per square yard of Bitumuls RS-2 emulsion with 60 pounds ¾ slag as a cover. The standard Bitumuls double surface treatment procedure was employed for a finished thickness of ½ to ¾ of an inch. The emulsion was applied by distributor truck in two applications. Each was followed with a covering of ¾ slag. This work was accomplished at a cost well within the budget that was available to us.

A trial section of 4¾ miles was completed in 1955 and proved so successful that property owners began an extensive building program along the highway. To complete the job, the work was extended the remaining 3 miles to the Delaware state line in 1956.

Success of the overall project is indicated by the rapid economic expansion that took place in the area immediately after completion of the surface treatment. Sand dunes and marshes were transformed into a series of modern motels, apartment houses, and beach homes extending in an unbroken line almost to the Delaware border. In 1956, the "new look" in State Route 528 was a major factor in a building boom north of Ocean City totaling $2,000,000.

The double surface treatment project was completed under the supervision of Charles A. Skirven, district engineer, and William F. Waller, assistant district engineer, District No. 1, Maryland State Road Commission. Technical assistance was provided by R. H. Warwick, of American Bitumuls & Asphalt Company.

$45 a day for electricity appears to



Municipal ice rink in Oak Park, Mich., uses some of the common rink operating practices adopted by towns and cities today.

Some facts and figures on

Artificial Ice Rink Operations

An investigation highlights the experience of communities in operating an increasingly popular municipal sport

AMONG the most enthusiastic proponents of artificial ice rinks in the country today municipal park and recreation departments take the lead. There are now more than 300 municipal artificial ice rinks in about 100 cities and towns in the country. Last year the National Recreation Association reported that some 688,000 persons flocked to 70 of these rinks in 26 of the cities.

The reason for popularity of the artificial ice rink is, of course, the guaranteed ice. As an example of the difference between the amount of skating possible on artificial ice and on natural ice, the Bureau of Parks And Recreation of ***Rochester, N. Y.,*** recently found that over the past three years it had 235 skating days on its artificial rinks during the three winter months of December, January and February, as compared to only 84 skating days in that same period on natural ice.

The ***City of Niagara Falls, N. Y.,*** which now has both artificial and natural ice rinks finds that because of heavy variations in weather, such as slight thaws or heavy snow, its natural rink is no longer one that it would recommend to other communities. During a recent winter, the city's Parks and Recreation Department recorded only 12 to 15 days of good skating ice in a six-week period and found the cost of keeping a 50-foot x 150-foot natural ice rink snow-free during the day and flooded at night did not warrant this expensive operation.

Results of Survey

In view of the recent experience gained by communities around the country in operating municipal artificial ice rinks, this magazine has compiled information on the operating procedures of some Northeast communities in the hope that this information may prove helpful to other municipalities in operating their ice rinks. Some typical questions asked were: What are the common operating practices? How many people are needed to operate a rink? What does it cost? A summary of the rinks survey follows.

By and large the operation of municipal ice skating rinks is not a paying proposition. The costs of operating them generally well exceed the revenues that are obtained from skating fees. Deficits of from $1,000 to $10,000 a year were registered in the rinks polled. For example, the Metropolitan District Commission's Blue Hills Reservation rink in the ***Boston, Mass.,*** area had a net loss of $720 during one of its recent year operations. ***Oak Park, Mich.,*** recorded a loss of some $4,000 during its 1956-1957 winter operation while the Genesee Valley rink in ***Rochester, N. Y.,*** had a loss of some $10,000 last year. As Rochester's Director of Parks W. E. Wright puts it:

Public skating on artificial ice sheets at the low fee of 25 to 50 cents per period will probably not be a paying proposition. It must be considered as a form of subsidized recreation open to all.

As is evident from representative cost figures on ice rink operation shown in the table, labor, electricity charges and in some instances water charges are the big elements in operating cost. Electrical rates of course vary from city to city, but a charge of approximately $40 to

$45 a day for electricity appears to be par for the average-sized rink. ***Detroit, Mich.,*** for example, figures on the average of $40 a day for electric charges on a rink.

Personnel

Two rinks were studied intensively to determine the number of persons required to operate the popular artificial ice-skating facilities. One was in Oak Park, Mich., a community of some 35,000 persons and the other Rochester, N. Y., a community of some 340,000 persons.

The Rochester rink, which has the higher daily cost of operation has a large complement of personnel, as follows:

Supervisory crew: 1 manager; 1 recreation leader; 2 ticket takers (also take care of record player and loudspeaker, and double as first-aid men and pass-gate attendants) 2 rink aides (supervise skating from ice sheet).

Maintenance crew: 2 compressor room attendants (also double as equipment operators including ice-resurfacer); 2 rink laborers; and 1 building maintenance man (responsible for care of shelter building and adjacent areas).

At times of above normal snowfall, additional park men in Rochester assist in snow clearance from the two outdoor rinks. Thus a total of 11 men are assigned to operate the Rochester rink. Labor cost at a typical Rochester rink comes to about $16,870 a year and the expectation is that this will be stabilized at approximately $16,500 a year.

At the rink in Oak Park, Mich., a smaller community, a somewhat more typical complement of rink workers is used. This complement consists of seven workers and is more suited to the smaller community, as follows:

1 rink supervisor or manager (full-time staff member); 2 refrigeration operators (also double as maintenance men in re-surfacing ice and performing custodial duties); 1 cashier; 3 skating guards (one only on duty weekday sessions); 2 concession operators (one only on duty weekday sessions).

In addition, Oak Park also has three regular Parks and Forestry Department men who are available on one-hour notice for snow removal during heavy snow periods.

The hourly wage rate of both Rochester and Oak Park rink employees are shown in Table II.

In several instances, it has been shown that labor and some utility costs can be reduced through the use of special equipment. For example, ***at the Blue Hills rink*** of the Metropolitan District Commission a savings of some $2,000 a year in water consumption is expected as the result of the installation of a water recirculating device in the present condensor units and also through the use of evaporator condensors. The engineers of the MDC also report that electrical charges can be reduced through the use of specially designed electrical control panels that give a high degree of control over the ice-making equipment thus taking the guesswork out of equipment operation in considering such factors as outside temperature, sun, brine temperature, etc. during variations in winter weather. A new control panel manufactured by the Creamery Package Manufacturing Co., and installed recently by the J. L. Turner Co. of Norwell, Mass., at the Blue Hills rink, is expected to result in electrical energy savings of $1,500 per season.

TABLE I—Some Cost and Revenue Schedules

	Boston, MDC Blue Hills Rink	Rochester, N. Y. Genesee Valley Rink 1956-57	Oak Park, Mich. 1956-57	Niagara Falls, N. Y. 1956
Labor	$7,000	$16,873	$6,583	
Electricity	6,500	8,193	4,216	$1,225
Water	2,500		174	350
Miscellaneous		1,520	1,277	100
Expenditure	$16,000	$26,586	$12,250	9,300
Typical Revenue	15,280	16,419	8,214	$4,500
Deficit	—$720	—$10,167	—$4,036	—$4,800
Operating Season	Nov. 15–March 15	Nov. 17–March 17	Nov. 26–1st week in March	Dec. 1–March 1
Attendance	41,896	53,535	39,098	32,000
Size of Rink (in feet)	.....	178 x 120	85x185	85 x 185

Resurfacing Machine

Perhaps the best recommended piece of mechanical equipment in the operation of municipal ice skating rinks is the Zamboni ice resurfacer (Frank J. Zamboni & Co., Paramount, Calif.) which shaves the ice surface, brushes it and washes it all in one operation. Virtually park department after park department in this study was found to be highly enthusiastic about this machine which, although expensive in its initial cost, has been found to pay off in reducing annual labor cost. The Blue Hills rink in Boston is expected to save about $500 per

TABLE II—Salary Scale of Rink Personnel (Hourly Rate)

	Rochester, N. Y.	Oak Park, Mich.	Niagara Falls, N. Y.
Manager	(1)* $2.12	(1) $2.10 or $5,600 per year	
Cashier	(1) $1.52-1.82	(1) $1.50	(1) $1.42
Ticket Taker	(2) $1.52-1.82		
Checker			(2) $1.42
Skating rink aide	(2) $1.52-1.82	(3) $1.50-1.60	(1) $1.62
Compressor Rm. Attendant	(2) $1.59-1.92	(2) $2.10	
Laborer or Maintenance Man	(2) $1.42-1.70		(2) $1.72 (1) $2.07 (midnight shift)
Building & Grounds Attendant	(1) $1.42-1.70		(2) $1.42

* Figure in parentheses indicates number of persons hired.

Table III—Representative Fee Schedules at Municipal Ice Rinks
(Admission Rates in Dollars)

	Detriot, Mich		Jersey City, N. J.		MDC Boston	Niagara Falls, N.Y.	Oak Park, Mich.		Rochester, N. Y.	
	Afternoon	Evening	Afternoon & Sat. a.m.	Evening		Sat. a.m.	Week Days	Sat. Sun. & Hol.	9:30 a.m. 7:30 p.m.	8 p.m. 10p.m.
Children..	Free	.10	Free	.50	.25	Free	.10	.10	.25	.25	.50
Adults...	Free	.25	.50	.50	.50	.25	.25	.25	.50	.25	.50

year in its labor cost through the use of their Zamboni ice resurfacing machine. As the Rochester park department indicates:

We recommend the Zamboni ice resurfacing machine (or something equal to it) be purchased or included in the original cost estimate of a rink. After a rink has been in use for a short time the public demands improved ice surface and we find this machine does an excellent job in maintaining such perfect surfaces.

There are, of course, many other pieces of equipment and devices designed to reduce labor cost, but these are mentioned as examples.

Operating Schedule

An operating season of approximately four months, generally from the middle of November to the middle of March, appears to be the most popular among communities in the Northeast. The Metropolitan District Commission in the Boston area operates its rinks from November 15 to March 15. ***Jersey City, N. J.,*** begins its season from November 12 and closes on March 3 to permit the stadium in which the rink is located to be used for spring stock car racing. ***Oak Park, Mich.,*** which in 1955 had one of the largest artificial rinks in the country, has a somewhat shorter season: from the day before Thanksgiving to around the first week in March. For as Jerry Raderstorf, director of recreation in Oak Park, Mich., observes:

Skating interest diminishes rapidly after the first of February as the end of the winter season closes and sports enthusiasts begin to turn their attention to spring activities.

Not all the cities operate their rinks on a full-week schedule. ***Rochester,*** for example, keeps its rinks closed on Mondays while ***Niagara Falls*** keeps its rinks open seven days a week. ***Oak Park, Mich.,*** finds that "it is not financially wise" to operate for recreational skating seven days per week in a city of 35,000. Mondays and Tuesday are found to be low interest days. Consequently, the skating schedule for Oak Park is so arranged that on these days the rink is available to private groups, such as church organizations, youth groups, civic groups, and private parties.

During weekdays, operating time from mid-afternoon through the evening appears to be the most popular. On weekends and holidays the rinks are usually open from 12 to 14 hours a day. Some representative time schedules are:

	Weekdays	Saturday, Sunday and Holidays
Detroit	3 or 3:30 p.m.—10 or 11 p.m.	9 a.m. to 11 p.m.
Jersey City	3 or 3:30 p.m.—10 or 11 p.m.	10 a.m. to 10:30 p.m.
Oak Park	3 or 3:30 p.m.—10 or 11 p.m.	8 a.m. to 10 p.m.
Rochester	3 or 3:30 p.m.—10 or 11 p.m.	
Niagara Falls	4 p.m.-6 p.m.—7 p.m.-10:30 p.m.	1-6 p.m.—7-10:30 p.m.
Utica	10 a.m.-10 p.m.	9:30 a.m. to 10 p.m.

Gate charges for ice skating vary from city to city as Table III shows. In most cities, the fees for younger children vary from ten cents on weekdays to 25 cents on weekends and holidays, while fees for older children and adults range from 25 cents to 50 cents on weekends and holidays. Some cities like Rochester charge a flat fee. In ***Oak Park, Mich.,*** during periods when the rink is open for private groups, the hourly rental charge is $12.50 per hour for local organizations and $15 per hour for nonresident organizations.

Some rinks provide free skating for youngsters. The ***Jersey City, N. J.,*** rink, for example, is free to children under 14 at weekday afternoon sessions and on Saturday mornings. ***Niagara Falls, N. Y.,*** maintains free skating for school children on Saturday mornings and during the Christmas vacation period. ***Detroit, Mich.,*** also offers free skating in the afternoon.

What are some of the conclusions that park and recreation directors arrived at as a result of two or three years of operating experience? From ***Rochester, N. Y.,*** come these suggestions:

1. The rink should be restricted in width to 85 feet, which is regulation hockey width, unless it is definitely planned to have no hockey at all on the rink. This eliminates the necessity and the expense of a portable hockey board.

2. All areas between the shelter buildings and the ice sheets should be paved to prevent any dirt from being carried onto the ice and there should also be ample paved area around the rink so that surfacing equipment can get on and off the ice sheet without carrying dirt onto the ice.

3. An area for beginner skaters should be set aside on the rink. For example, at one of Rochester's ice skating facilities, 20 feet (of the entire width of 85 feet) at one end was reserved for this and separated by a rail from the remainder of the ice skating rink.

4. A third or standby compressor is recommended in preference to frequently used storage tanks because of the greater effectiveness over a longer period of time. At Rochester's Genesee Valley rink, two 60-ton capacity compressors are supplemented with a third one rated at 30 tons.

5. Artificial ice rinks should not be located near deciduous plant materials which lose their leaves in the fall. Leaves blowing onto the ice sheet and freezing into the ice can cause much trouble later when they absorb heat from the sun and cause honeycombed ice.

Although most of the snow removal work consists of removing light snowfalls, the rotary brooms are capable of handling heavy accumulations of snow, as is evidenced in this snow-fighting scene taken in a residential district.

Sidewalk Snow Removal Ordinance

Detroit, Mich., requires sidewalk plowing contractors to provide rotary brooms, surety bond and insurance, and city inspection of equipment

SIDEWALK snow removal in Detroit means business to many private individuals and companies. These people provide snow removal service on public sidewalks throughout the city, using equipment regulated by ordinance and inspected by the city.

Section 2 of the ordinance stipulates the equipment permissible.

> No person, co-partnership, firm or corporation shall operate upon the sidewalks of the City of Detroit any snow removal equipment operated by a motor-driven vehicle of a gross weight in excess of 4,000 pounds not equipped with pneumatic tires and of an over-all width greater than the width of the public sidewalk and shall not in any case be wider than six feet and not equipped with a revolving-type brush. No person, co-partnership, firm or corporation shall use any snow removal equipment of a scraper or plow type operated by a motor-driven vehicle.

A typical tractor rotary broom combination used by private owners to clear snow.

Other sections of the ordinance stipulate that before a permit is granted, the equipment must pass inspection by the Department of Public Works and the owner must provide a $5,000 surety bond for the protection of the city plus a $5,000 property damage and $10,000-$20,000 public liability insurance policy. All permits expire on September 30, of each year and are nontransferable during the permit term.

With the exception of Section 2, the ordinance does not apply to the homeowner, occupant or lessee who, by means of a motor-driven device, removes snow from the sidewalks contiguous to his premises.

Definite Areas Served

At present about 40 equipment owners operate approximately 110 tractors equipped with rotary brooms such as those manufactured by M-B Corporation of New Holstein, Wis.; the Tractor Equipment Division,

Ford Motor Company, of Birmingham, Mich.; etc.

Only one operator is allowed to service any given area so that any damages can be proven against the operator without conflict. Each area contains about 1,000 lots of average size, and service is rendered throughout the winter months whenever there is more than one-half inch of snowfall. The equipment owners offer this service to property owners or residents at a fee of $5 for inside lots and from $10 up for corner lots with frontages on two streets. The charge comes to about 10 cents per lineal foot for areas of large frontage, such as church grounds and large estates. This fee covers service for the entire season regardless of the number of times the service is required. During the 1956-57 season 35 separate sweepings were necessary. The City of Detroit in no way authorizes the fee or its collection. The individual operators handle all solicitation within their area either in person or by circulars.

Experience shows that to remove one-half inch of snow from 1,000 lots consumes approximately three hours' running time. Consequently, during a heavier storm when the snow exceeds the one-half inch mark, the area will be covered more than once.

One snowfall during the spring of 1957 had drifts from one to three feet and the driving snowstorm lasted more than 24 hours. During this storm the operators worked constantly, removing snow until their areas were cleared.

San Antonio Votes for Urban Renewal

THE people of San Antonio, Texas, went to the polls last December and voted overwhelmingly in favor of an urban renewal program. By a 4 to 1 majority, citizens reaffirmed that San Antonio does have blighted areas and that the city should undertake an all-inclusive urban renewal program.

An all-out effort was made by civic leaders to inform the public of the need for local action. A detailed brochure and a handbill were among the media used by the city. Radio-TV sport announcements and newspaper advertising sponsored by the San Antonio Home Builders Association also played an important part in stressing the advantages and urgency of urban renewal. All three local newspapers editorially supported the program the voters favored.

San Antonio was fortunate in having authority under its relatively new Council-Manager Charter to proceed with an urban renewal program. However, to eliminate all possiblity of legal entanglements and to bring such a program under the recently passed State Urban Renewal Act, it was felt that such a vote was highly desirable before the inception of the program.

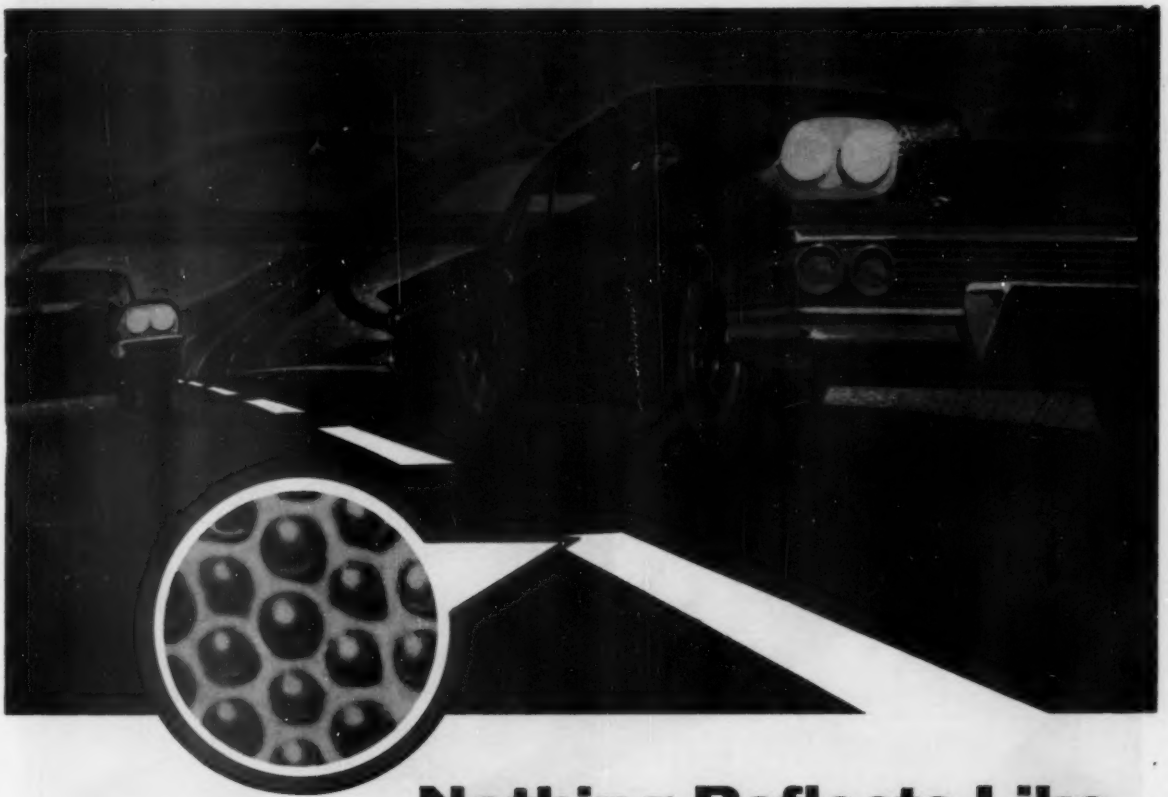
Elimination of Alleys Yields Detroit Neighborhood Play Space

A PLAN to create additional neighborhood play areas through the abandonment of backyard alleys is under way in Detroit, Mich. The plan suggests that when alleys are eliminated neighbors can join the extra yard space together to form a safe playground for small children in the centers of residential blocks. The plan is practicable because most of Detroit's alleys serve only limited functions. Since access to private automobile garages is not gained through the alleys but instead through residential frontyards, their only purpose today is for public rubbish collection. But to facilitate the alley closings, Detroit's Department of Public Works is revamping its collection practices to permit regular pickups along street frontages. Detroit families which now use the front pickup system are reported to like it better than the old method, for it encourages neatness.

In Detroit, backyard alleys serving only limited purposes are eliminated to create neighborhood play areas. The program is part of neighborhood conservation effort.

To close alleys and thus set the stage for the creation of new neighborhood play areas, the Detroit City Plan Commission has established a step-by-step procedure. In the first step, all property owners in the block petition the Plan Commission office for an alley closing. If all property owners do not agree to the alley closing, the city can close the alley by securing a court order from the Circuit Court. This is possible when two-thirds of the property owners have signed a petition.

The Detroit Committee on Neighborhood Conservation reports that many property owners in Detroit have already closed the back accessways thus making it possible for new play areas to be established. The entire program is a part of a major neighborhood conservation effort now under way to improve conditions in declining residential areas.



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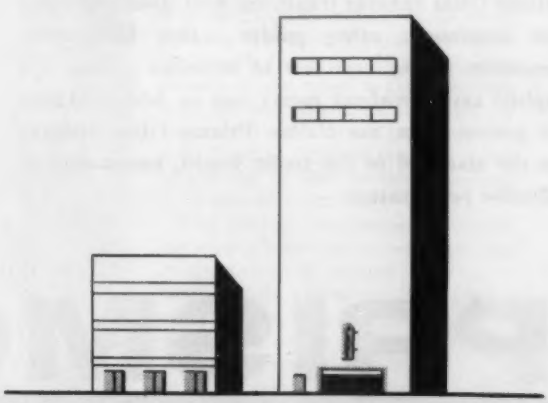
Practical Use of Rapid Transit

By L. F. HOWARD
General Electric Co., Erie, Pa.

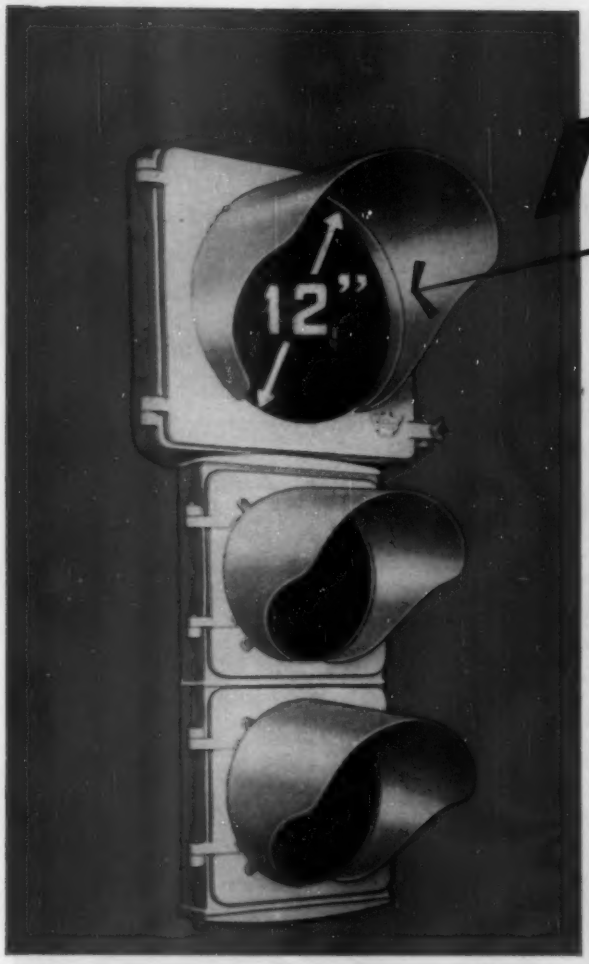
AFTER 50 dynamic years of progress in plumbing, appliances, entertainment, air conditioning, etc., urban transportation has improved so little that it can still be challenged by a horse!

Efforts to make progress can be found in every community. One-way street programs, elimination of curb parking, restrictions on turning movements are all directed toward making streets more efficient. Almost all have been directed toward providing means for driving our autos where and when we choose. A more effective solution goes beyond this to the provision of a common transportation system which will fulfill the need and contribute inherent advantages not possible by any other means. Many believe that a rapid transit system meets the requirements, and that the key to progress in urban transportation lies in the integration of all forms of transportation, using rapid transit as the backbone.

Rapid transit moves large numbers of people quickly, conveniently, and economically. The population of metropolitan areas is increasing four times faster than the national average. The day-to-day movement of people and goods is increasing about three times as fast as the population growth. Some two-thirds of this movement of persons and goods takes place on city streets which make up roughly one-tenth of the na-



If all workers and customers drove to downtown stores, required parking space would be three times the floor space available.



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tion's highways. Check after check throughout the nation indicates that even during rush hours each auto carries an average of only 1½ persons. The need for transit systems which will move large numbers of people expeditiously becomes steadily more apparent.

On a limited-access highway a single lane can move 2,000 persons per hour in autos. The total capacity of an 8-lane expressway—4 lanes in each direction—is 8,000 persons per hour By contrast, a 2-track rapid transit line with a capacity of 40,000 passengers per hour is equivalent to five 8-lane expressways. As a typical example, Chicago's Outer Lake Shore Drive has 2 reversible lanes, thus providing 6 lanes of traffic in the direction of greatest volume during morning and evening rush hours. A double-track rapid transit line operating over a generally parallel route using one track in each direction, carries 63,000 rush-hour passengers per day—compared to 30,000 carried by the 6 lanes of expressway during the same periods.

Almost all of the older rapid-transit systems were laid out on a "walk-to-the-station" basis. Now, with the auto as a feeder, a rapid transit station in the suburbs can draw riders from a much greater area than formerly. An example of such a suburban auto-transit station is shown for Boston.

Used as a feeder, the auto enables transit stops to be more widely separated, thus giving the passenger a faster ride. The schedule speed attainable with half-mile runs between stations is 25 mph; spacing of 2 miles, 48 mph. A schedule speed of 45 to 50 mph is necessary for rapid transit to compete with autos.

Why Not Mix Autos and Buses?

Some say "True, the auto alone will not solve the urban transportation problem; however, we can kill two birds with one stone. Expressways can be used by both the bus and the auto, and 'Rapid Transit' can be provided by the motor bus." Too frequently, the bus is trapped in traffic.

Table I—Transit Riding Trends
(% Change Over Same Period in Previous Year)

System	Year 1956 Rapid Transit	Year 1956 Surface	1st 11 Mos. of 1957* Rapid Transit	1st 11 Mos. of 1957* Surface
Chicago, Ill.	+2.5	—1.0	—2.9*	—6.4†
Shaker Heights, Ohio	+3.9	....	+1.3	....
Key System	—4.9	—2.2	—4.2	—12.9 (10 mos.)
New York (NYCTA)	+0.1	—0.5	—5.5	+0.1
Philadelphia, Pa.	—2.7	—4.3	—4.6	—2.8
Toronto, Ontario	+3.1	—3.6	+1.0	—3.8
All U. S. Systems	+1.02	—6.19	....	....

* Subject to adjustment at close of calendar year.
† Went to 25c fare.

The need for a separate right-of-way still exists. This has been recently illustrated in the Detroit area where two of the evening rush-hour express bus routes were removed from the expressways. Why? Because of delays and potential traffic accidents resulting from congestion.

A bus on a separate right-of-way *is part* of the answer. When the bus frequency becomes great, it is more economical to move the people in trains.

Appreciation of the faster, unhampered ride offered by transit on a separate right-of-way is steadily growing. Rapid transit riding remained fairly constant during the last three years, while surface transit has continued on its toboggan slide.

Chairman Gardiner of the Metropolitan Council of Toronto stated that a dollar spent on rapid transit is worth five dollars spent on more arterial highways and parking facilities.

Wiley's War to Keep Pedestrians Safe

A PRIME example of the esplanade, or expansive-intersection, is Columbus Circle in New York City. Anticipating increased volumes of pedestrian traffic from the new Coliseum, a new pedestrian safety plan featuring designated crosswalks, pedestrian signals, and fence barriers was installed in Columbus Circle. The old red-green signals were replaced by three-color signals. Arrow indications were used for special movements. The most serious safety problem was the steady stream of pedestrians that poured through Columbus Circle from every angle and particularly from Central Park. The pedestrian crossing plan eliminates this hazard and directs pedestrians by signal lights, fence barricades, and signs to follow a route around the Circle, instead of cutting across it.

The new installations include 12 pedestrian "WALK" and "DON'T WALK" signals. To complete the plan, a steel fence was erected around the Circle to block dangerous pedestrian crossings.

Throughout New York City more than 250 Winka-Matic pedestrian signals were installed at 54 locations, making a total of 550 now in use. First designed by the Department of Traffic and constructed by Winka-Matic, the WALK-DON'T WALK signals are a third larger than standard units, providing excellent visibility to pedestrians at wide street crossings.

Electronic controllers of the volume-density type by which traffic itself sets the signal timing were installed at a number of locations. This type of equipment is particularly effective at high density locations where there are strong shifts in the relative importance of each entering traffic stream.

Congestion Reduced

"Operation Crosstown" reduced congestion on six heavily traveled oneway crosstown streets in midtown Manhattan. Standing of vehicles is prohibited on the north side of these streets from 8 a.m. to 1 p.m., and on the south side from 1 p.m. to 7 p.m., except Sunday. As a NO STANDING regulation prohibits stopping for loading and unloading of merchandise, the effect of the regulation was to clear one or the other curb lane for the movement of traffic during the heavy traffic hours. Hence, the prohibition against standing provides two open lanes for moving traffic on each of those streets between 8 a.m. and 7 p.m. on every busi-

Important Angle

There are many things about street lighting poles—*details* of construction, materials and assembly—that add up to a mighty important angle. They make a big difference *through the years!*

Monotube poles give lasting satisfaction. They are backed by years of research, development and experience!

For catalogs or specific engineering data, write to The Union Metal Manufacturing Company, Canton 5, Ohio

In Canada: The Union Metal Manufacturing Company of Canada, Limited, Brampton, Ontario.

LIVE BETTER ELECTRICALLY

UNION METAL

Monotube Lighting Poles

ness day. Heretofore, there was usually only one center lane for traffic movement on these one-way streets, and often that was blocked by trucks backing in and out. Studies were made before and after the establishment of the regulation to determine its effects.

More than 200 test runs were made on crosstown streets in the area between 8 a.m. and 7 p.m. With arbitrary definitions that a good trip takes eight minutes, or less, a fair trip takes eight to 12 minutes, and a poor trip over 12 minutes, the test runs showed the following results:

	Before	After
Good (under 8 minutes)	33%	58%
Fair (8 to 12 minutes)	30%	28%
Poor (over 12 minutes)	37%	14%

The survey revealed that about 25% of all trips were changed from poor to good ones.

The school traffic safety plan delineates the routes to be followed by school children and specifying the location and the types of protective devices and markings that can be used.

Channelization

A machine which mechanically lays asphalt curbs was placed into extensive use for channelization purposes. This device places and compacts a curb on top of an existing pavement with no excavation or breaking of pavement required. After the curbing has been laid, the remaining area lying within the curb outline may be filled in with paving material or with earth to permit landscaping, if desired.

More than 9,000 feet of white, reflectorized curb, encompassing over 43,000 square feet of surfacing, were placed on the city's streets. Besides their pedestrian safety and traffic channelization advantages, the new islands eliminated the need for a large number of signs and stanchions.

Radio and Microwave Help Control Toll Road

TWO-WAY radio and microwave relay system aids communications between police and maintenance crews patrolling the completed section of Florida's Sunshine State Parkway. The new system, manufactured by General Electric's Communication Products Department, Syracuse, N. Y., links 26 patrol cars and 26 maintenance vehicles with turnpike toll plazas and administrative personnel from Miami to Fort Pierce.

The microwave portion of the network is used to carry two VHF channels as well as three telephone dial channels, a service channel and associated fault and supervisory services. The VHF ties together toll plazas, maintenance area, interchanges and mobile units on a common party line basis. A telephone with bell-signaling unit is supplied at each microwave-equipped station for maintenance purposes. Signalling betwen stations is accomplished with coded ringing between stations by means of a pushbutton on the phone.

Since much of the work of police and maintenance crews is emergency in nature, a high degree of equipment reliability is mandatory. To accomplish this, a built-in supervisory control and fault alarm channel is included. From McArthur, a pulse is inserted into the channel continuously and is conveyed over G-E tone dispatchers at the control console. When a fault occurs at a remote station, the tones identify the station as well as the fault and identification lights become activated on the console. The fault detected, automatic switching to auxiliary, or standby, equipment is effected.

Courtesy Boxes and Meter Maids Just Fine!

THE reaction of residents to our new Traf-O-Teria System of depositing parking meter violation penalties at 31 "Courtesy Boxes" covering 700 meters has been very favorable. After 90 days' experience with the boxes, we found a higher response to tickets, particularly from the out-of-town motorists.

All credit for the definitely increased revenue—up 30%—should not go to the new convenient fine boxes, because we inaugurated a new system of meter patrol at the same time the boxes were installed. The police department replaced the mounted police officers with "Meter Maids" in the short-time metered area. These women patrol on foot around a circuit that they can traverse at a moderate pace in 50 minutes. They then take a 10-minute break, and exchange tours. I would say that the present meter patrol idea is the principal factor in our financial improvement, and that the "Courtesy Boxes" are a wonderful good-will builder. We use the mounted officers on the long-time meters.

J. B. Grogan, *Chief*
Police Department, Athens, Ohio

A meter maid of Athens, Ohio, who patrols the short-time Dual parking meters.

recognized Everywhere

AS METERED PARKING AT ITS BEST

Here are some facts worth your consideration:

1 PARK-O-METERS are in use in more than 1,350 cities.

2 PARK-O-METERS represent more than 20 years of practical operation experience – the longest for any meter made.

3 In 375 cities more than 100,000 Park-O-Meters have been purchased *to replace meters* of other makes.

4 Read item number 3 again and ask yourself, WHY?

5 There are over 600,000 Park-O-Meters *now in use* with new installations being made every day.

Here are some reasons why PARK-O-METER leads:

1 They are completely *automatic*, simple and easy to operate and meet with fullest public acceptance.

2 They are adjustable to Split-rate as well as conventional rate settings and for any coin combination and time limit, 6 minutes to 72 hours.

3 Adjustments to change *time limits* or *coin combinations* or rates can be made *on site* without shop overhaul.

4 Park-O-Meters are sturdy, tamper and theft proof, and require less service than any other meter.

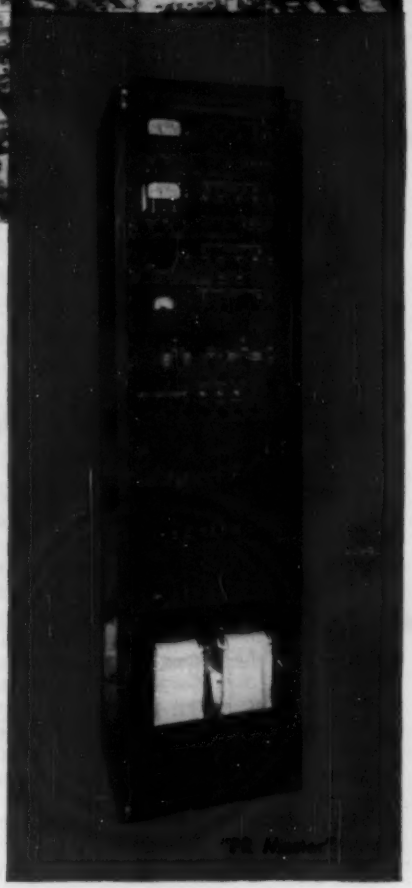
5 There are no exposed working parts to be affected by weather or to tempt vandalism.

6 Park-O-Meter permits use of
Pennies
Nickels
Dimes
Tokens
Quarters
any one or more or all 5 through a single coin slot.

PARK-O-METER

Outdoor Lighting

SAN ANTONIO LOOKS TO 1970.... with its NEW Traffic Signal System



153 intersections now controlled by ELECTRO-MATIC® PR SYSTEM

Handling today's traffic is difficult enough, but to provide signal controls for expected 1970 traffic volumes is a major accomplishment. San Antonio did just that. They selected a flexible, versatile system that not only puts an end to downtown traffic snarls but insures movement of maximum volumes in the years to come.

An ultramodern all-electronic "PR" System controls 153 intersections in the heart of vital, growing San Antonio. All changes in volume and direction of traffic are constantly recorded and the most effective signal indications automatically computed and put into effect smoothly and without delay.

For details on how the PR System can help your city grid or arterial traffic, write for Bulletin No. E-224.

"PR Local"

TRAFFIC ACTUATED

AUTOMATIC SIGNAL DIVISION
EASTERN INDUSTRIES, INC.
NORWALK, CONNECTICUT

FOR TRAFFIC SIGNS, STREET NAME SIGNS, LICENSE PLATES

Mercury vapor luminaires arranged oppositely, 110 feet apart, and set at a height of 30 feet give Gary, Ind., one of the nation's best-lighted downtowns. And at the right, luminaires at a height of 30 feet at staggered intervals of 165 feet give Gary's residential streets that safe look.

By PETER MANDICH
Mayor
Gary, Ind.

Crime and Traffic Deaths Down 70% in Relighted Gary

GOOD street lighting is a necessity for a good city, says Mayor Peter Mandich of Gary, Ind., a man who knows the price of darkness.

Mayor Mandich knew Gary when it was dark. He saw the unnecessary lives lost in nighttime traffic accidents, the city's mounting after-dark crime rate, the parents who cautioned their children to "be home before dark," the young women unwilling to venture alone down a dark Gary street at night. And he decided there was a way to meet the problem without adding more law enforcement officers to the public payroll. His answer: new and better street lighting.

Mayor Mandich carried the issue to the people and won re-election in 1952 with one of the main planks in his platform calling for a sweeping city-wide relighting program.

That same year, he set the wheels in motion to bring about the installation of a modern street lighting system for Indiana's second largest city. He named George S. Pavol, for 20 years a member of the Gary police force, to serve as city traffic engineer, and appointed a committee made up of Mr. Pavol, two members of the City Council, and two representatives of the Northern Indiana Public Service Company. Utility officials were wisely brought into the planning picture at the outset because they would have the ultimate responsibility for installing and maintaining any street lights the City of Gary might decide to purchase.

Illuminating engineers from the General Electric Co. and Northern Indiana Public Service Company developed and submitted to the city a relighting program designed to erase the city's worst after-dark trouble spots at the outset and then proceed to those

FOR TRAFFIC SIGNS, STREET NAME SIGNS, LICENSE PLATES

USE THE BEST FOR WHITE AND YELLOW SIGNS

4 WAYS BETTER

LONG RANGE VISIBILITY

Good target—complete angularity means better visibility and unequaled legibility up to the point of passing.

BETTER LIGHT—BETTER SIGHT

A truly white bead, lead free, of crystal clear quality, without objectionable surface glare. No "dead" spots. Lasting and luminous brilliance night and day.

RUGGED DEPENDABILITY

Unaffected by thermal shock . . . highly resistant to weather, dirt, industrial fumes and other atmospheric conditions.

SAVES TIME AND MONEY

Economical . . . you perform the work right in your own shop.

Available in all standard sizes for Traffic Signs, and "extra-fine" grade for Street Name Signs and License Plates.

FLEX-O-LITE

FLEX-O-LITE MFG. CORPORATION

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use FLEX-O-LITE 831 REFLECTIVE GLASS BEADS

"PERMANIZED" with STORMCOTE Protective Covering Agent

Now, high quality, low cost reflectorization, never before obtainable at any price, is yours with the new Flex-O-Lite No. 831 Reflective Sign System. Applied economically and "permanized" with STORMCOTE protective coating, you get unexcelled reflectivity and legibility in white and yellow signs that are 'way out front in quality. Put the new No. 831 Reflective Sign System to the test in your own shop. For details write today for new bulletin. Use the handy coupon below.

Flex-O-Lite Mfg. Corp., 8300 Flex-O-Lite Drive,
P. O. Box 3066 (Affton Br.), St. Louis 23, Mo.

Gentlemen: Please send full particulars about Flex-O-Lite's New 831 Reflective Sign System.

Name_____

Title_____

Street_____

City_____ Zone____ State_____

areas of the city which are less hazardous.

Mercury vapor luminaires were selected in a budget for street lighting improvements to be increased by $30,000 each year. Since the inception of the long-range relighting program in 1952, 3,436 new mercury vapor fixtures have been installed in Gary. Of this number, 1,445 have replaced outmoded, low-output units and the remainder — 1,725 — have been installed at new locations. Plans call for continued expansion of the city's street-lighting system until every trouble spot in Gary has been properly lighted.

Traffic Engineer Pavol knows the hazard of dimly-lighted streets. "Safety in our streets is where these new lights are really paying off," he said. "In 1952, before the program began, we had 43 night traffic fatalities. In 1955, we had only 20. And this decline occurred in spite of a 27% increase in population and a 68% increase in vehicle registration during the same three-year period."

Police Chief John Foley pointed to another significant set of statistics. During the 1953-1955 period, he said, robberies on Gary streets dropped 65% and assaults decreased by 75%. The important consideration here is that the national average for both robberies and assaults was steadily increasing during the same period. "That's why I say a good street light is as valuable as a good policeman, and a lot cheaper, too."

Sizes, Efficiencies, Colors Make Mercurys All-Purpose

By JOHN W. YOUNG*

THE mercury vapor lamp in street lighting service has won its place by its efficiency. Mercury lamps of all sizes in street lighting service in the country approximate 600,000 entering 1958.

A notable fact is that most mercury vapor public lighting has been done with the 400-watt lamp and this rating continues for many present lighting designs. A small percentage of installations are of 250-watt lamp size and some numbers of the 700-watt rating are now in service. Installations of 1,000-watt rating are contemplated.

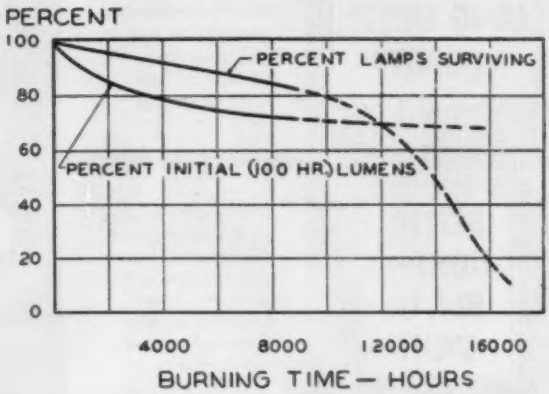
Lamp Family

Interest in mercury lamps, however, now extends to the full complement of lamp sizes recommended and offered for street lighting, 100-watt to the 1,000-watt. This family of lamps embodying both clear and color-modified types is adaptable as an illuminant for lighting the various areas and classes of streets in accordance with the ASA-IES Recommended Practice. The wattage gradation of the family of lamps include:

Lamp Watts	Clear Lamp Lumen Vertical Burning
100	3,500
175	7,000
250	11,000
400	15,500-21,000
700	36,000
1,000	55,000

Mercury lamps embody the compactness and high-wattage possibilities of filament lamps. A minimum of light center lengths and the fitting of mogul bases for the complete line tends toward simplification.

Quartz arc tube lamps are adaptable to vertical, horizontal or other specified burning positions and thereby possess versatility in optical system design in meeting desirable candlepower distribution. The available range of sizes is capable of fulfilling the same lighting now performed by the incandescent lamp. While the larger vapor lamp sizes, as expected, show the widest economic advantages, small sizes are practical and may likewise be economical; but the full complement of sizes serves definitely to raise light generation for street lighting systems to a new plateau of light efficiency.



Performance of a group of 50 E-H1 mercury lamps in field service at 8,800 hours' burning time.

A recent fluorescent-mercury lamp development improves the entire spectrum from deep violet to deep red and provides output and lamp efficiencies that exceed clear mercury types. It is a high-efficiency phosphor lamp.

Lamp Characteristics

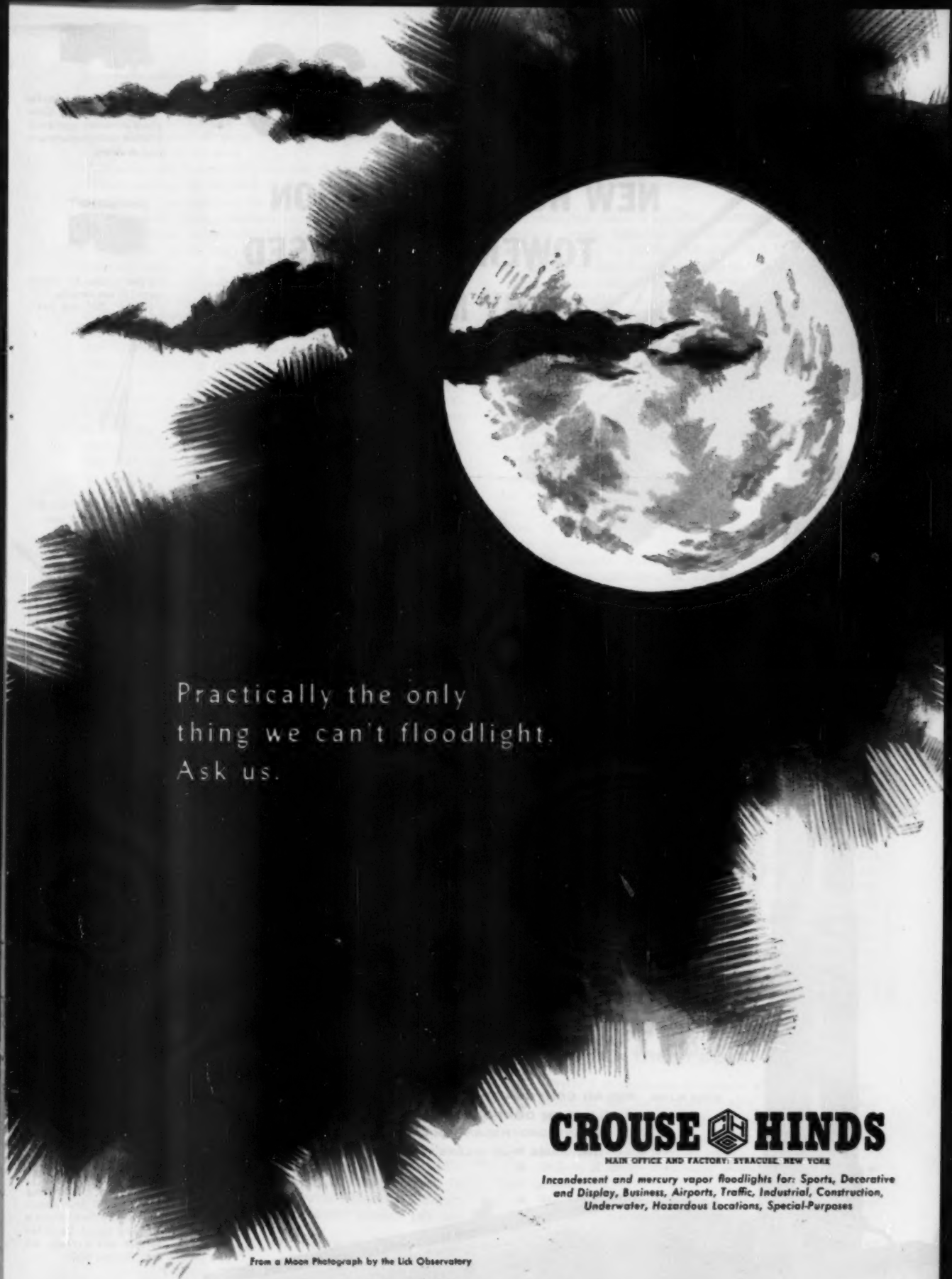
In the evaluation of lamps, suitability and performance may be viewed by the user in terms of the essential lamp characteristics of ***(a) efficiency, (b) life, (c) lumen maintenance.*** Reference will be confined to certain pertinent points since a full coverage of the subject matter is beyond the scope of this discussion.

The property of ***efficiency,*** that is, lumens per watt, is a prime advantage of mercury lamps that has contributed (with other electric discharge lamps) to a new production era.

The properties of ***life and lumen maintenance*** may be more adequately treated together since the light output is definitely related to the in-service burning hours of the lamp. Average life has increased consistently and now stands at 6,000-7,000 hours for street lighting types.

Mercury lamps generally have a longer useful life

* From a paper presented by Mr. Young at the National Technical Conference of the Illuminating Engineering Society, September 9-13, 1957, Atlanta, Ga. Mr. Young was formerly with the New England Power Service Company, Boston, Mass.



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Incandescent and mercury vapor floodlights for: Sports, Decorative and Display, Business, Airports, Traffic, Industrial, Construction, Underwater, Hazardous Locations, Special-Purposes

From a Moon Photograph by the Lick Observatory

Largest single order... 26

NEW HOLAN 5-SECTION TOWERS PURCHASED BY MAJOR CITY

44 SQUARE FEET OF WORK SPACE 30 FEET IN THE AIR. Crew members, working on 4′ by 11′ Holan tower platform to install fluorescent lighting. The 96-pound luminaire is raised to exact position with tower controls.

5 TELESCOPING BOX SECTIONS extend with the five telescoping cylinders that lift the Holan tower into the air. Result: maximum strength, stability and safety . . . and a smooth ride up. Platform equipment includes push-button controls for raising and lowering, a handle for rotation and a 3-foot safety railing. Everything folds neatly over the body for stowage. Holan's 5-section design permits installation of tower behind the cab on *any* chassis even though transmission might extend beyond rear of cab. Rotary, transverse and stationary towers are available—17′, 23′ 6″, and 30′ maximum heights.

J.H. HOLAN CORPORATION

4100 WEST 150TH STREET
CLEVELAND 11, OHIO

OTHER PLANTS: **HOLAN CORPORATION OF GEORGIA,** Griffin, Ga.
J. H. HOLAN CORPORATION, PHOENIX DIV., Arizona
BRANTFORD-HOLAN LIMITED, Brantford, Ontario

THE NAME THAT MEANS WORK SIMPLIFICATION

Line construction bodies for light to heavy-duty. Crew compartments optional. Efficient tool compartments and drawers.

Service bodies for chassis up to 1½ ton. Lengths, 72″, 75″, 84″, 90″ and 102″.

Hydraulic Derricks designed for front or rear mounting. Capacities to 12,000 lbs.

Ladders to 40′ with all phases completely hydraulic. Pump actuated by P.T.O. or separate engine drive with electric starter.

Portable hydraulic and mechanical earth borers. Augers for 8″ to 20″ diameters, depth to 8′.

Aerial arm for spotting workmen 37 feet above ground, 9 feet below ground level. Double-basket unit extends 45 feet. Rotates 360°.

than their rated life. In specific terms, 8,000 hours average, or two years in service, has been attained in some instances. Groups have been operated 10,000 to 12,000 hours in service.

It is not my intention to review the various electrical design factors of ballasts or the circuitry and choice of system. Lamps may be operated through individual transformers from constant current series circuits or directly from secondary circuits of moving coil or static-type regulators with auxiliary devices. Multiple primary supply of an individual ballast serving a lamp predominates in mercury lighting installations.

Of the factors, however, of multiple ballasts that determine the design and price of the product, the starting voltage is of particular interest. The starting voltage characteristic of a lamp-ballast circuit has been under continuing clinical treatment by lamp and ballast designers for some time. The requirement to be met is the minimum voltage for satisfactory starting of lamps outdoors under the cold weather temperature conditions in which they may operate. And the provision of open circuit voltage has a direct bearing on the size and weight, and likewise cost, of the ballast—in short, there is a price for building-in open circuit voltage, especially for equipment to start lamps at —20 and —30° F.

Luminaire Comparisons

As the first step in an economic analysis of street light operation, comparisons may be made between luminaires of a given light source type and, significantly, between luminaires of differing light sources as well.

Cost is composed of:

- Fixed cost and maintenance of the luminaire (less lamps)
- Electrical energy cost
- Lamp replacement and labor cost

The total is the cost of the generated or "raw" light produced by each luminaire and resolved in terms of the cost in dollars per one million lumen-hours, a convenient light production cost unit.

Obvious findings may be taken from such data. The mercury group demonstrates wide economic advantages in light production compared with the incandescent, the spread between the larger sizes (above the 10-11,000 lumen level) being especially marked. But the area at and below this rating is of interest as well. As is evident, the 100-watt alone, probably the smallest practical size for street work, does not show an appreciable difference from the filament near its ratings. However, two pertinent observations apply here: first, mercury lamp efficiency developments (as with the 100-watt "white" phosphor-coated lamp, now rated 4,000 lumens) will increase the advantage of this and any of the smaller lamp sizes compared with incandescents; second, lower cost auxiliaries, such as reactors, and the low inherent losses will widen the margin in favor of mercury still further.

Having determined the cost of the generated light for luminaire as selected, the application of luminaire utilization and maintenance factors follow and calculations are carried through to the annual cost of furnishing the effective lumens required for the final lighting layout. A street of 50-foot width, lighted to 1.2 ft-c average, maintained, with the 21,000-lumen lamp, shows the cost of the effective lumens per 100 lineal feet of street as approximately 60% of that were the 15,000-lumen incandescent source used. A recent installation of the 175-watt, 7,000-lumen lamp compared with the 6,000-lumen incandescent, shows the cost of the required effective lumens per 100 lineal feet of street at around 80% for mercury compared with incandescent.

Substantial experience has accrued to date with mercury street lighting in all areas now served by filament lamps. A further advance is a luminaire with the optical system designed for large wattage phosphor-coated lamps. And a new departure in design utilizes diffusion-reflection of a vertical lamp positioned luminaire for highway lighting.

Commercial and business areas introduced mercury as a desirable public way lighting source and extensive installations are now serving these areas. The prime qualifying factor is the economy in furnishing high-lumen lighting. The public likes the esthetic features provided by the clear mercury lamp, and the color treatment achieved with the "white" phosphor-coated lamp.

The applied foot-candle values have shown a gradual rise from the recommended minimums as the desire for stronger lighting effects has continued to grow. Shorter spacings prevail in commercial areas, ranging from 85 feet to 100 to 115 feet. Mounting heights are 30 to 32 feet.

Traffic streets quickly followed commercial areas with mercury installations, the 400-watt lamp predominating.

The significant justifying factor, again, is the economy in meeting the required foot-candle intensities. Much traffic street lighting is provided on distribution line poles, served by overhead circuits, and the solution is quite generally a lamp-for-lamp arrangement. With such situations the investment in utilization equipment is virtually the same for either mercury or incandescent lamps. Mercury equipment has proved versatile and adaptable to a wide range of street widths —28 to 90 feet curb to curb. Three lamp sizes: 175, 250 and 400 watts may be used in the same luminaire for various street classifications.

Mercury lamp color properties for the sake of color rendition have not been important on traffic streets. Coated lamps, however, tender some refinement in light distribution and brightness control in certain luminaires that ordinarily use the clear lamp. Increased diffusion in the optical system cuts back candlepower at the high angles. A material reduction of the dazzle and the scintillating effect about the luminaire may thus be obtained. A practical coated-lamp application is on slopes and grades in reducing glare at certain angles objectionable to the driver-observer.

What Street Lighting Means to the Public

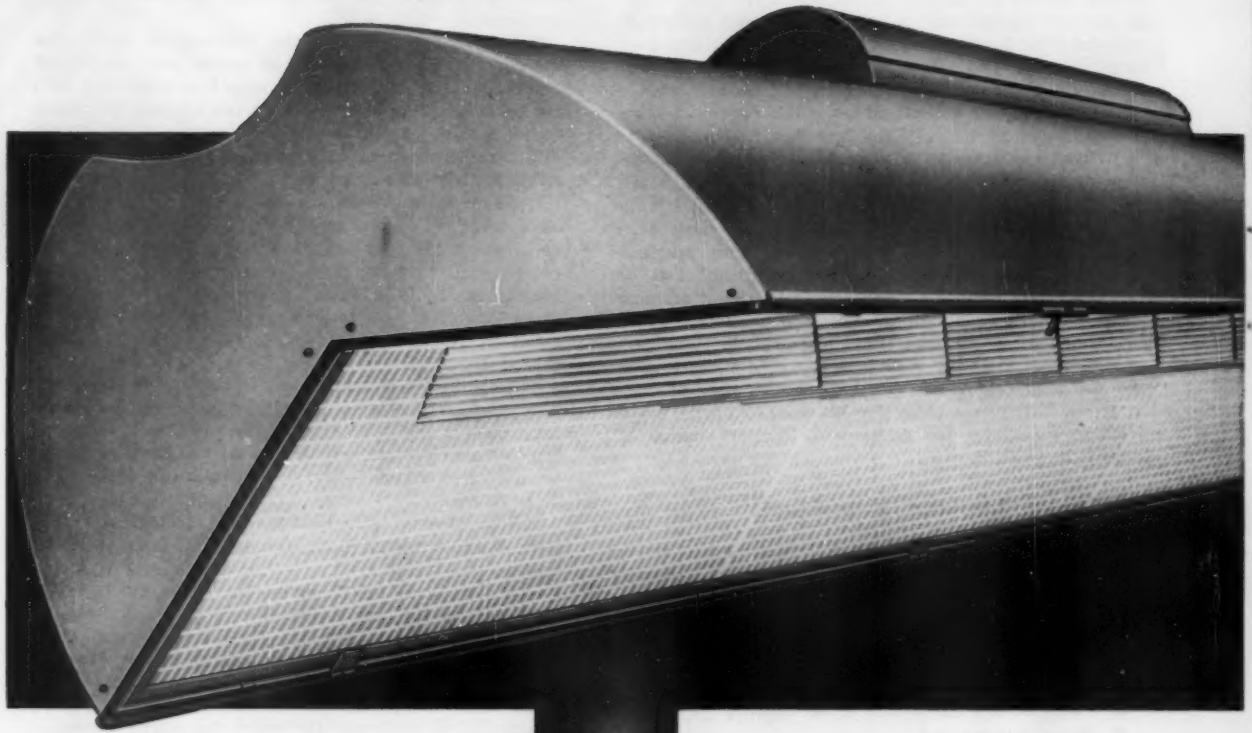
VARIOUS deficiencies in people which can be compensated for to a considerable extent by street lighting are indicated by these facts:

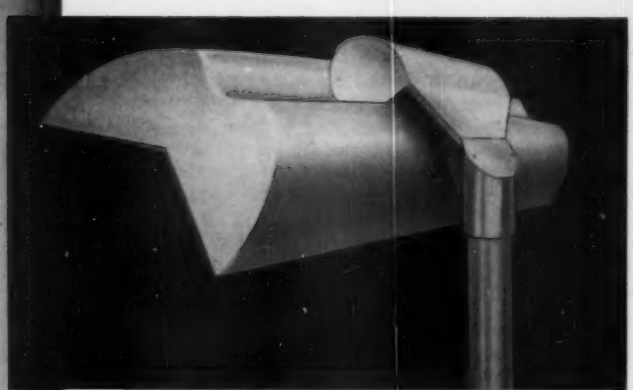
- Visual efficiency is lower at night.
- Millions of drivers have vision unsafe for night driving at high speeds.
- The average 55-year-old person with 20/20 vision requires

(Continued on page 137)

NEW MAINSTREETER

by Westinghouse





MAINSTREETER INNOVATIONS—GUIDE TO ALL FUTURE STREET-LIGHTING LUMINAIRE DESIGN:

Modern fiber-glass housing *cannot* be dented, is *corrosion-free*, never needs painting. Variety of heat-treated cast-aluminum brackets gives wide choice of mounting arrangements. Newly engineered reflectors of aluminized plastic have *exceptional* specularity! Exclusive acrylic refractor *controls* light *two* ways: interior lenses direct more than 50% greater light output onto the roadway; prismatic louvers direct light *again —further* shielding light from drivers' eyes! Sponge vinyl gasket eliminates moisture, bugs and dust; maintenance is negligible. Stainless-steel hardware retains "new" appearance. Remarkably improved ballast is easily accessible underneath "matching" cover in the support yoke, *eliminating* heat problems! "Universal" lampholders accommodate *all* rapid-start fluorescent lamps, including high-loaded lamps, giving MAINSTREETERS an almost limitless service-life! Simple switch of lamps and ballasts permits *any* circuit operation! J-04435

PARALLEL TO THE STREET! NO GLARE!

WHAT'S MORE—DELIVERS 50% MORE LIGHT TO THE ROADWAY

THAN ANY PREVIOUS FLUORESCENT LUMINAIRE!

Never before—street-lighting like this!

There is now a luminaire that provides faster, more *accurate* seeing—with *greater comfort for drivers!*—than any previous fluorescent street-lighting fixture ever developed! It is the striking new MAINSTREETER luminaire, created by Westinghouse. Moreover, MAINSTREETERS deliver efficiency of performance never achieved with fluorescent street-lighting before!

The sleek MAINSTREETER housing, of "indestructible" fiber-glass, mounts *close* to the pole and *parallel* to the street! So MAINSTREETERS avoid the cluttered daytime appearance of luminaires protruding out over the street. And the housing-ends of MAINSTREETERS—combined with special louvers on the refractor—completely shield drivers' eyes from nighttime glare of the lamps. Vision is unimpaired!

Cast-aluminum brackets provide adequate adjustment for levelling—plus the capability of tilting the luminaire for unusual applications. The entire unit is designed to give *ideal* light-distribution, conforming *exactly* to the street width!—providing *uniform* foot-candle levels—and a definition of objects impossible in the past! With less distraction and better seeing by "everyone," accident rates will be still further reduced!

In addition, new DUAL optical systems PUT OVER 50% MORE LIGHT ON THE STREET!

The *entire* output of MAINSTREETER lamps is now controlled *two* ways! MAINSTREETER refractors have, *inside*, a pattern of countless prismatic lenses—directing *more* light, from contour-engineered reflectors, *specifically* down onto the street! Then, on the *outside*, twelve exclusive prismatic louvers *again* control this light—to achieve a new concept of street-lighting comfort! The result is *better than 50% more complete utilization of all light produced by the lamps!*

See, at left, all *eight additional* features of MAINSTREETER luminaires—*already establishing* all future street-lighting design! Nothing parallels MAINSTREETERS—parallel to the street!

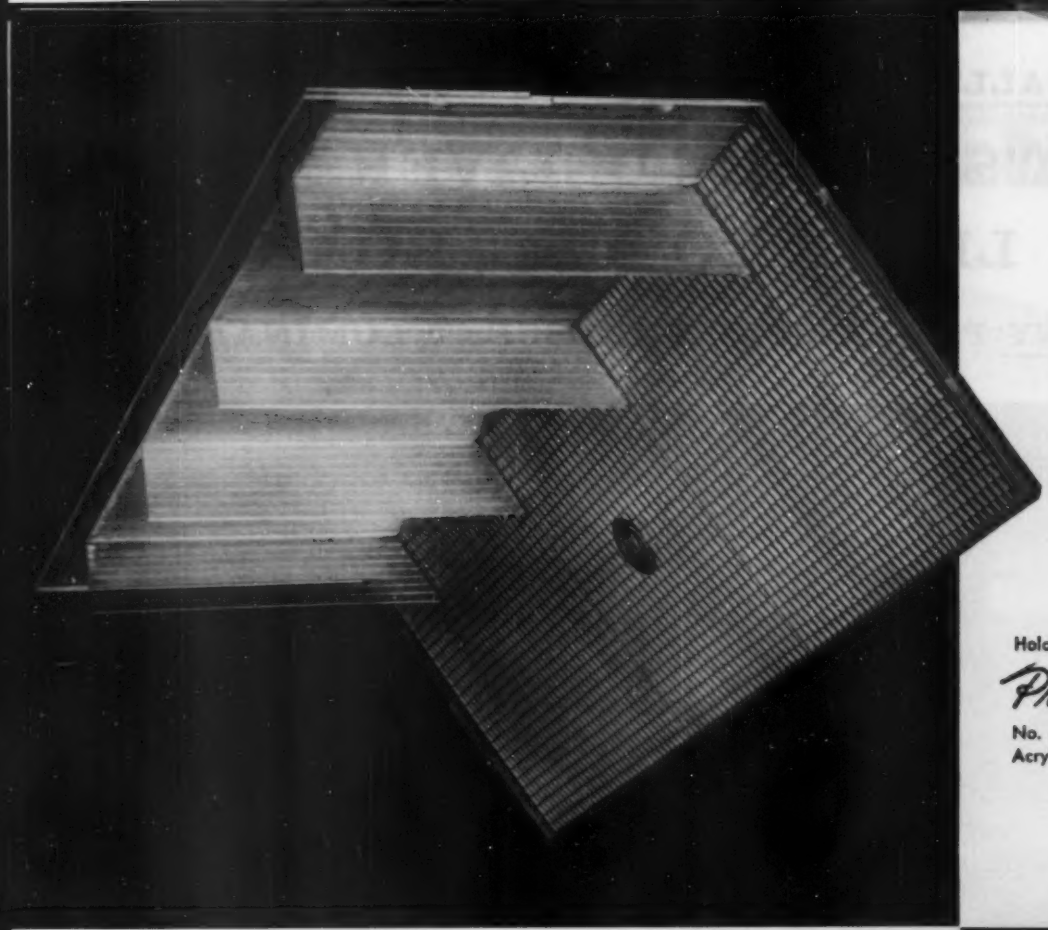
Watch Westinghouse Achievements in Lighting

Orders Accepted Now!

Volume production of MAINSTREETERS already is underway! Traffic engineers "everywhere" proclaim the hope of vastly improved safety records. And this is the expectation of MAINSTREETER illumination! Call your near-by Westinghouse representative for preferred delivery list information TODAY. Or, write to Westinghouse Electric Corporation, LIGHTING DIVISION, Edgewater Park, Cleveland, Ohio, RIGHT AWAY!

YOU CAN BE SURE...IF IT'S

Westinghouse



Holophane

Prismalume®

No. 4800 Prismatic
Acrylic Plastic

HOLOPHANE LINEAR REFRACTOR for Westinghouse Type HUS-Fluorescent Street Luminaires

A new basic concept in street lighting... using established principles of prismatic light control to provide highly effective fluorescent illumination with very low glare. By test, the veiling glare of these new luminaires is only a fraction of that resulting from conventional fluorescent types... The advancement in lighting efficiency is noteworthy. Holophane Linear Refractors can increase the amount of useful light directed to pavements and sidewalks by over 50%. *Write for engineering data.*

HOLOPHANE COMPANY, INC.

Lighting Authorities Since 1898 • STREET LIGHTING DEPARTMENT • NEWARK, OHIO

THE HOLOPHANE CO., LTD., 418 KIPLING AVE. SO., TORONTO 14, ONTARIO

Copyright 1958, Holophane Company, Inc.

(Continued from page 133)

twice as much light as a 20-year-old.

- At 50 mph a person sees 14% less than at 45 mph.
- Glare decreases sensitivity of visual senses.
- Alcohol lowers visual acuity.
- Color sensitivity is lost at low levels of ilumination.
- Street lighting can extend daytime visibility around the clock.

Benefits of Modern Street Lighting

- Facilitates traffic flow through congested areas.
- Reduces high traffic speeds before entering well-lighted street.
- Saves life. Lessens grief.
- Reduces street crimes. Protects property.
- Protects women and children.
- Increases evening shopping.
- Increases and stabilizes real estate values.
- Raises city's prestige.
- Increases church attendance.
- Attracts new residents. Attracts new industries.

Although street lighting has been with us for centuries, traffic safety was not a big problem until the first motor-vehicle fatality occurred just about 50 years ago in Rochester, N. Y. Since then there have been 1¼ million fatalities and 40 million injuries. Of these, ⅔ occur during the hours of darkness with less than ⅓ of the traffic volume.

WARREN H. EDMAN
Holophane Co., Inc., Newark, Ohio

New Lights for Airports

A FLUORESCENT airstrip-lighting system will soon be installed at the National Airport, Washington, D. C., following extensive tests at Andrews Air Force Base, Md. It provides a ribbon of brilliant light on each side of a runway for 1,500 to 2,000 feet.

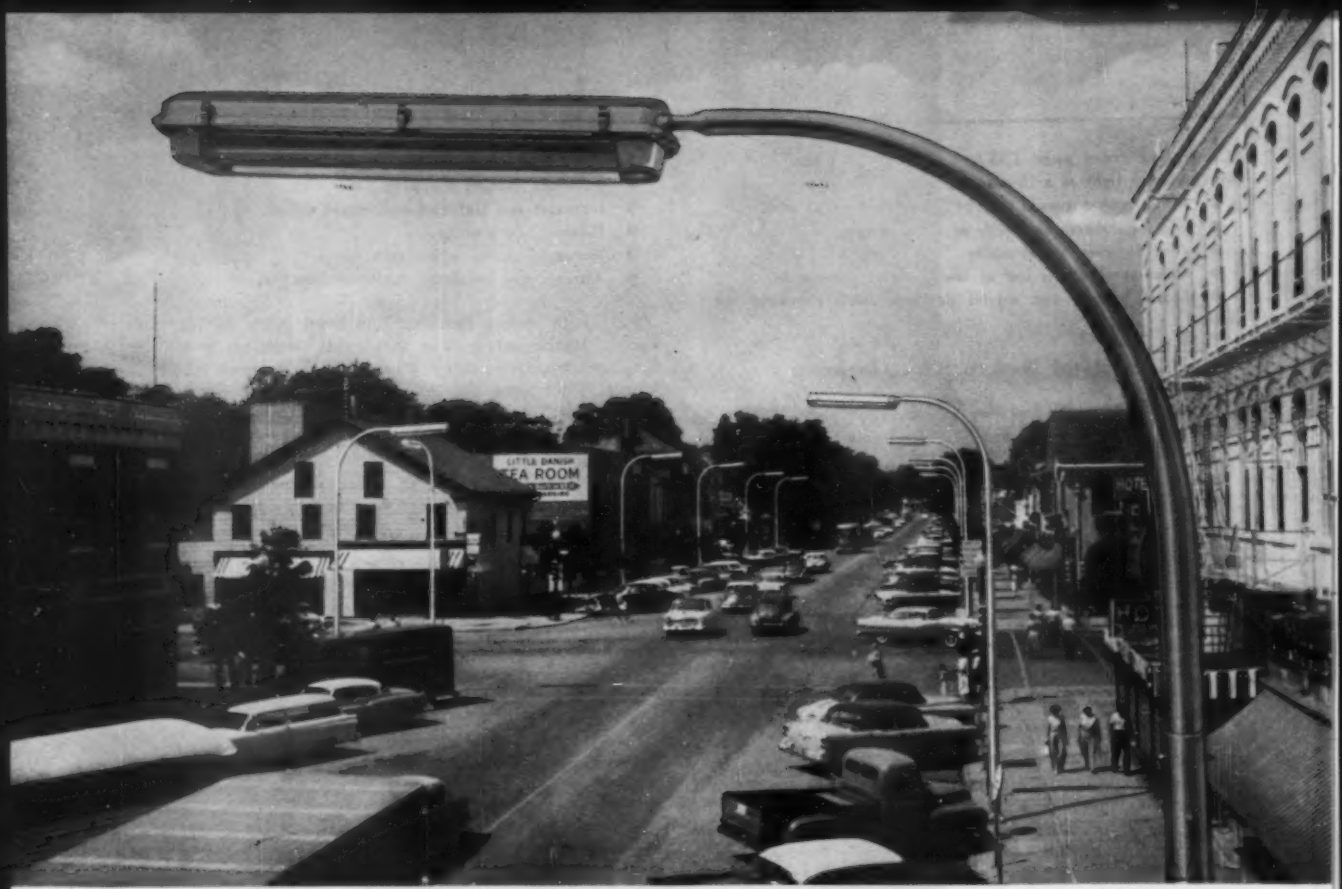
Using fluorescent tubes that are three times brighter than ordinary fluorescent lamps, the parallel lines of light, backed by reflectors, spread illumination evenly across the entire width of the landing strip and eliminate the "black hole" that normally confronts pilots when they are within 50 feet of a touchdown and "feeling" for the concrete runway.

As the jet age emerges, the report explained, the "black hole" between the widely-spaced beacon lights now commonly lining airstrips is becoming increasingly dangerous. Jet planes not only land at greater speed than propeller planes, but also are less stable just before touchdown. Better runway lighting is imperative.

Another aviation development reported by the Illuminating Engineering Society consists of proposed beacons at La Guardia Airport and at Washington, to reduce airplane noises over congested parts of the cities. The beacons are to be emplaced several miles from the runways and will serve as targets for pilots immediately after takeoff. By the time planes arrive at the targets, they will have attained sufficient altitude to circle into the direction of their next scheduled stops and, if it is necessary to pass over the nearby city, can do so at heights at which motor noises will not be disturbing. The 2,500-watt mercury vapor beacon lamps produce beams of light equal to the rays of 10,000 automobile headlamps.

This 2,500-watt short-arc Westinghouse mercury lamp, which is mounted three miles from New York's LaGuardia Airport, produces a beam of 300 million candlepower from a ¾-inch arc housed between two tungsten poles in a quartz bulb.

A lamp to minimize airplane noise, one of the newer developments of lighting engineers, is described by Eugene W. Beggs, Westinghouse Lamp Division, Bloomfield, N. J., an active member of the IES' Progress Report Committee.



L-M 6-FOOT 4-LAMP FLUORESCENT UNITS in the main shopping center of Lake Geneva, Wisconsin. Units are at a 30-foot mounting height, at 55- to 60-foot staggered intervals. The four 100-watt lamps in each unit provide 5350 lumens, giving an average maintained illumination of 2.00 foot-candles, compared to .13 foot-candles of the old-style upright luminaires.

Lake Geneva Installs L-M Fluorescents For Better Lighting, Better Shopping

DEAN VAN NESS
City Manager
Lake Geneva, Wisconsin

"One of the most forward steps this city has taken in a number of years," says Dean Van Ness, City Manager, about the new L-M fluorescent street lighting system, recently installed in the beautiful southern Wisconsin resort city of Lake Geneva.

"City officials and citizens are well pleased with the appearance—both day and night. The lighting is most effective," adds Manager Van Ness.

The quarter-mile White Way layout in this famed resort center was created in cooperation with the Wisconsin Power & Light Company. L-M 6-foot shallow 4-lamp luminaires are mounted on 6-foot davit arm aluminum poles with 30-foot light centers. Poles are staggered at 55- to 60-foot intervals. The system gives an average maintained illumination of 2.00 foot-candles on the street, compared to .13 foot-candles of the old-style upright luminaires.

L-M fluorescent lighting like Lake Geneva's offers several important advantages. (1) Good lighting increases nighttime in-town shopping. (2) Traffic accidents are reduced. (3) Petty thievery is cut substantially, or eliminated, in lighted areas. In addition, L-M fluorescents provide low operating and maintenance costs. The special design utilizes the greatest proportion of the light with practically no glare. And L-M's unique wiring feature makes installation easy, fast, and economical.

Ask for Bulletin

Ask the L-M Field Engineer or Lighting Specialist for information on L-M's lighting application engineering for streets, shopping centers, and airports, and for a free copy of bulletin on L-M fluorescent outdoor lighting. Or write Line Material Industries, Milwaukee 1, Wisconsin.

McGRAW EDISON

319 R

LINE MATERIAL Industries Outdoor Lighting

McGRAW-EDISON COMPANY

Meet the Mainstreeter Luminaire

A DEPARTURE in street lighting is a new Westinghouse fluorescent luminaire using a Holophane linear prismatic refractor. Prismatic louvers on the refractor, as well as the 30-foot mounting heights, help shield the drivers' eyes from the glare of the lamps.

The prismatic construction of these refractors, made of transparent acrylic plastic, direct more light down onto the roadway. Westinghouse outdoor lighting specialists say that the result of the entire design is better than 50% more utilization of all the lamp light.

Another feature of the Mainstreeter luminaire is mounting close to the pole and parallel to the street. The prismatic pattern of the linear refractor aids in getting the most light on sidewalks and pavement, with this parallel position. For delivery information write Westinghouse Electric Corp., Lighting Division, Edgewater Park, Cleveland, Ohio.

Lighting Above Code in Midland, Pa.

MIDLAND BOROUGH, Pa., comments Duquesne Light Co., is one of a dozen or so municipalities in which every foot of traveled roadway is lighted in excess of the minimum standards recommended by the American Standards Association.

Lighting modernization began six years ago when one hundred and four 10,000-lumen lamps were placed along Midland Avenue. The shadows were dispersed by this high-intensity lighting. Traffic was safe, sales rose and better protection for Midland's citizens was evident. Pleased with these results, borough officials decided to light the rest of the community.

Lighting engineers of Duquesne Light were asked to recommend a planned street lighting program for the entire community in five steps. The first was to survey existing street lighting conditions. Data on traffic volume, accident experience, parking practices, and road surface characteristics were collected. Vehicular and pedestrian traffic counts were made.

A blueprint showed the location of each proposed street light, the spacing and mounting height of the luminaires, the size of the lamp.

A comprehensive report gave the Borough Council a summary of the present lighting conditions and the changes necessary to bring the lighting system in line with the recommendations of the Committee on Street and Highway Lighting of the Illuminating Engineering Society and the American Standards Association.

The final step called for the removal of one hundred and forty-seven 2,500-lumen lamps and three 4,000-lumen lamps in obsolete luminaires. These were replaced by two hundred and eighty-eight 4,000-lumen lamps in modern refractor-type luminaires spaced so that every foot of roadway would be illuminated.

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BATHEY SURVEYOR STAKES AND IDENTIFICATION CAPS
- A Permanent Marker
- Professional Advertising
- Dip Needle Response
- Five Lengths 3", 18", 24", 36", 48"

SPECIAL CAPS
STANDARD CAPS
BENCH MARK
Permanent Solid Brass Marker for Setting in Concrete
HEAD 2¼" Dia. ⅛" Thick
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WRITE FOR LITERATURE
BATHEY MFG. CO.
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a NEW solid-color PVC
POLY-CONE*
tough, durable, no seams, will not CRACK, TEAR or BREAK!
This new SAFE-T-CONE never needs repainting. Just wash it with soap or solvents. Made of polyvinyl-chloride to produce the toughest, most durable cone on the market. Outlasts ordinary cone many times .... without upkeep!
*Polyvinyl-chloride
Brilliant SOLID YELLOW or SAFE-T-GLO COLORS
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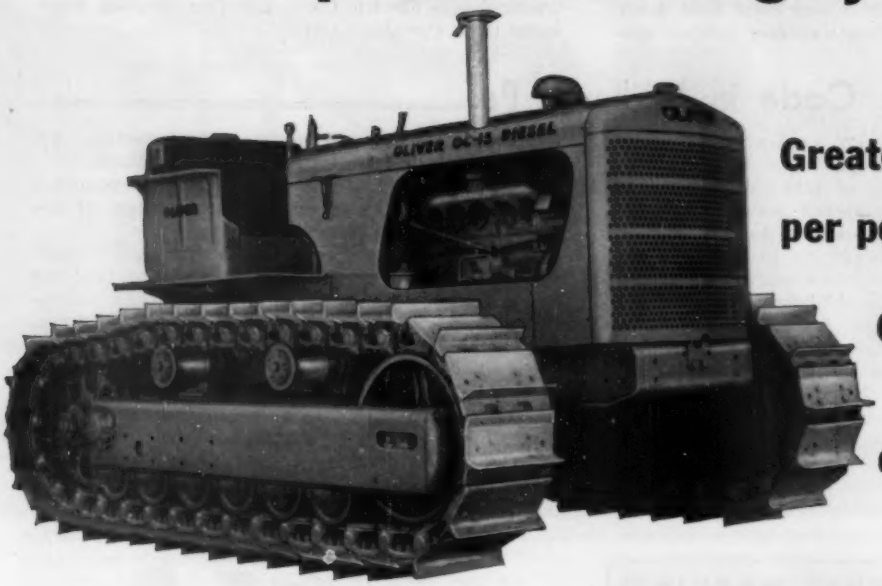
SAFE-T-CONE® TRAFFIC GUIDES
Painted or Reflectorized ALL RUBBER
Regular all-rubber SAFE-T-CONES, now better than ever. Painted standard red and yellow or reflectorized.
28" 18" 12"
All-Rubber SAFE-T-CONES available in 3 SIZES!
Plastic or All-Rubber FLUORESCENT
New Poly-Cones and All-Rubber cones available in brilliant orange-red fluorescent for extra brilliance, day or night.
SAFE-T-CONES made only by Radiator Specialty Co. Charlotte, N. C.

OLIVER

presents the mighty OC-15



Greatest horsepower per pound of tractor

Greatest return per dollar invested!

In nationally recognized official tests, the OC-15 came out first for power against every other tractor in its size class. It's the power leader *any way you rate it!* In total, the OC-15 is the most powerful, performance-packed, profit-making crawler for its size yet. It's 1958 modern...and ready for you right now!

- Greatest power to weight ratio...a full 110 net engine h.p. High-torque, 529-cubic-inch diesel.
- Has more reserve power—you work faster, more efficiently with any mounted attachment.
- Handles wider work range—all at less cost per yard-moved with its fuel-thrifty full diesel. 24-volt starting.
- Long 87⅛" crawlers with greater ground contact, higher flotation, tremendous traction! Six lower track wheels.
- Two-track turning action...easy air-steering operation.
- Heaviest-duty, service-saving design—reinforced and trussed at every stress point.
- Compare it on every count—price especially. You'll want the OC-15!

Oliver OC-156 Loader—gives a new speed and work range to your operations. Designed and factory-built as an integral tractor-loader, the big 2¼-yd. loader is matched to the full capabilities of the powerful tractor. Tremendous hydraulic bucket break-out action for toughest digging...high bucket lift for faster, more efficient loading. A lasting investment in lowest cost digging-loading-backfilling and other services.

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Industrial Sales Div., 19300 Euclid Ave., Cleveland 17, Ohio

a complete line of industrial wheel and crawler tractors and matched allied equipment

A New "WPA" Honors Phoenix Manager

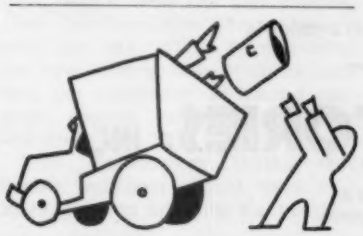
LAST October, a new WPA was organized in Washington, D. C. This was not, however, an activity of the federal government. Actually, its name is "Wilson's Proteges Association."

The new group is living testimony to the value of internship programs in city management sponsored by several of the graduate schools of public administration in universities throughout the country. Phoenix, Ariz., has been one of the cooperating cities ever since Ray Wilson was appointed there eight years ago. Each year, three graduate students in public administration are chosen to spend a one-year internship in Phoenix. This affords them on-the-job training under the tutorage of one of the country's most experienced city managers.

For several years, some of the interns from Phoenix have met informally at the International City Managers' Association conference and have talked of forming a "mutual admiration society" honoring Mr. Wilson. All of his former interns receive copies of the Phoenix City Managers' *Newsletter*, and *Monthly Review* (administrative reports to the city council). On occasion, he writes letters to all of his "graduates," giving professional advice and tips on management.

This year, they decided to honor their "coach" by a more formal association which they light-heartedly named WPA. Gayle T. Martin, Phoenix's first administrative intern, and currently city manager of Manhattan Beach, Calif., was elected president. Others attending this founders' meeting were:

Raymond T. Olsen, City Manager, Prescott, Ariz.
Aaron Marsh, City Manager, Florence, S. C.
Richard G. Simmons, City Manager, Hines City, Fla.
Robert Herbert, Manager, Lakewood Township, N. J.
Carl Brobert, Assistant Manager, Arlington County, Va.
Wilmot L. Averill, Atomic Energy Commission, Washington, D. C.



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DAY OR NIGHT

NEW Safety Yellow Jacket . . .

combines High Visibility with High Dielectric Resistance — excellent protection for every utility, construction, maintenance and road crewman. Made of the same top visibility yellow color approved best for hunters. Fabricated from tough Bakelite "Krene" with 9,600 volt dielectric resistance. Super-Weld* seams, waterproof, cold weather flexible, won't mildew or rot, easily laundered. Has attached parka for complete foul weather protection.

16,000-volt dielectric resistant jackets & pants also available.
Write for Bulletin AC-Y

PLASTIMAYD PRODUCTS CORPORATION
*TM Portland 14, Oregon

MFRS. AERIAL TENTS • MANHOLE GUARD COVERS • SAFETY TARPS

Off-Street Parking PAYS OFF!

Over 700 Western Parking Gates in more than 100 cities have proved that off-street parking can be handled automatically at a substantial profit. Positive control—Western Parking Gates are electrically operated to give complete flexibility, dependability and ease of operation in any city parking facility.

Western Parking Gate in combination with hourly rated "Parkontrol" Time-Dater-Imprinter Equipment.

Key, electro-card, coin and token-operated gates, separately or in combination, provide the answer to municipal lots operated on a flat fee arrangement.

"Parkontrol" Time - Dater - Imprinter Equipment available for operations involving hourly rate and validation parking. Low labor costs, low initial equipment cost and simple installation make them a wise investment for any city.

Exclusive Features — Western, builder of more than 12,000 railroad and highway crossing gates, has engineered the "Lot Full" sign, electric opening and closing treadles, double key controls for night and day parking, electro-cards with period changes, push-button remote controls and automatic counters.

WRITE TODAY for information on the various parking lot control plans available for your application.

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FOR BEST PERFORMANCE

Rigorous traffic tests in many cities throughout the country continue to prove that plastic is the longest lasting modern material for the heavy traffic conditions of today. These conclusive tests also show that NEFSLABS and NEFMATS are the finest plastic traffic marking products available. You are invited to enjoy their trouble-free performance.

FOR LOW ANNUAL COST

Why repaint traffic lines twice a year or more? Use extra long-life NEFSLABS and NEFMATS to save many costly repainting jobs through the years. The service of these tough plastic products is measured in **years,** not merely in weeks. Their permanency vastly reduces bothersome traffic bottlenecks . . . saves time, workmen, and scheduling headaches.

FOR EASY APPLICATION

Quickly applied by spray gun or brush, NEFSLABS and NEFMATS bond securely with our cold, fast-drying adhesive.

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Colorful **NEFSLABS** and **NEFMATS** literature is available

New Sales Territories are Open for Capable Representatives.

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Municipal
Public
Relations

The City Tells Its Story

Edited by PAN DODD EIMON
Executive Director, Government Public Relations Association

A 1957 G.P.R.A. Prizewinner:

Richmond, Va., Bolsters City PR With as Much Steak as Sizzle

THE public relations program of a city, according to Richmond, Va., City Manager Horace H. Edwards, should "be used as a supplement to good government, to publicize it and gain public consent for it." Public information should promise "only what the city is willing and able to fulfill." Otherwise, he says, "PR will boomerang with skepticism of future programs as 'all sizzle and no steak.'"

With that approach, Richmond set up an Information and Research office (I & R) at city hall, which will round out two years this month. Mrs. Ulrich Troubetzkoy, former newspaperwoman and Richmond writer-poet, is the officer in charge. She got her job, incidentally, on the basis of a competitive civil service examination. I & R handles: press, TV, and radio relations; publications; certain aspects of employee relations; a speakers' bureau and program planning for clubs, civic groups, and schools; tours of city facilities; research (and often, writing) for speeches, surveys, and magazine articles by city officials; general inquiries, complaints, and services to citizens.

Honorable Mention Award

So impressed were judges, in the annual Government Public Relations Association Competition, with the Richmond PR operation that they gave it a special honorable mention (second, only, to the more costly and elaborate program of Philadelphia, which won the top citation. (See THE AMERICAN CITY, January 1958, pp. 149, 151). Former PRO for New Orleans, Dave McGuire, said that the day-to-day Richmond program showed "amazing ingenuity and know-how."

PRO Troubetzkoy thinks that "public relations should work two ways: gaining approval for progressive city policies and programs which merit public support, and arousing a constructive, rather than hostile criticism when modifications are in order."

Basically her job in February 1956 was to "set up an active, balanced PR program from scratch . . . to develop it within the city service and to make it a two-way form of communication with the citizens—listening to their suggestions, questions and complaints, as well as telling them about the city."

Removing Press Obstacles

Press relations needed first attention of I & R (and these still get careful and consistent attention). The PRO conceives of her job as one of "clearing obstacles to news sources for reporters, suggesting features, supplying background material for news and editorials."

Significant in improving press relations has been the PRO's talks with and memoranda to departmental directors on the subject. These are to the point. "Our main press problems," she tells directors, "seems to have been personality problems. Our principal justifiable complaints have been about people who refused to talk, even when stories for which they were asked had become common knowledge and a reporter simply wanted to fill in details." She suggests, "Give him the whole story and you are far more likely to find it reported fully and fairly than if you force him to tap leaks for whatever they may be worth."

"No Comment" Is Comment

Again, on "no comment," she writes directors, "This, in itself, is a form of comment. Also, it should be realized that a reporter is fairly warm on the track of a story by the time he asks a question that gets the 'no comment' treatment." The "general public reaction to the 'no comment' is to look on it as a symptom of something possibly sinister in government."

She suggests alternatives: a full story with a request that it be held—if there is a legitimate reason to ask this; the truth, if the person queried hasn't full information or if the full story hasn't been developed; if the story has already broken and the person queried hasn't the necessary information, promise it and follow through promptly.

I & R provides similar assistance for TV and radio news and program representatives. Mrs. Troubetzkoy has found that, in Richmond, these people "prefer releases, written or verbal." Spot announcements, news features, and a regular city manager TV program are carried by Richmond broadcasters.

City publications have been "coordinated" by I & R—lined up so that their issuance and content make sense to, and have a cumulative effect on, citizen readers. Among the publications designed and often written by the PRO are: annual and quarterly reports (the latter going to 500 "opinion leaders"); departmental reports, histories, and brochures for various departments; the REB (Richmond Employees Bulletin) which goes out—with paychecks—to 5,000 city workers; a bimonthly *Transit Topics* column under head of "from the city manager's desk" (surveys show it is read by 58 per cent of the riders); and a page of news for the *Richmond Realtors* magazine. I & R is also responsible for the council procedure sheet, a leaflet on the history of the city hall, and an article on the city's past. Also prepared are exhibit guides, promotional brochures, and other publications for citizens.

Signs, covers, diplomas, brochures

These played a part in the nation's best MPR efforts for 1957

P&K

PACKAGED LIGHTING UNITS

make the job easier!

To complement the modern architectural style, the Westlake Shopping Center, Westlake, California, chose P & K lighting standards. Why not? They obtained the desired quality of lighting and, by having the entire unit supplied by one reliable source, they made the job so much easier. With so many P & K groupings to choose from—davit or straight standards or more artful shapes—and a choice of three light sources, incandescent, fluorescent, or mercury vapor—Westlake, in effect, customized their installation with standard components. Needless to say, they enjoy all the advantages of P & K aluminum lighting standards, for, in addition to their good looks, they offer easy installation, no maintenance. Before you specify any lighting standards check the P & K catalog first. For your copy send for Catalog L-2.

WESTLAKE PREFERRED THE P & K 32-FOOT DAVIT STYLE STANDARD

whose sweeping, tapered lines are in perfect harmony with the surroundings. The luminaire itself is the P & K LUXaire—a weather tight fluorescent fixture that allows for convenient lateral adjustment and easy relamping. The four flourescent tubes of this six-foot model provide 21,000 lumens. Other LUXaire's from 2 to 8 foot provide from 6,000 to 40,000 lumens.

P&K

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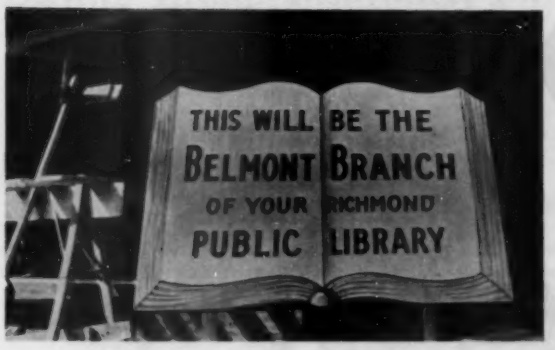
84 FOUNDRY ST., NEWARK 5, NEW JERSEY

These played a part in the nation's best MPR efforts for 1957



Honorable Mention award was won by Richmond's PR unit which designs signs like the one at the top of page and produces publications like those in the illustration immediately above. The "wanted" circular is for police recruitment.

Best MPR in the U. S. for 1957 was won by the City of Philadelphia. A municipal fair (press clippings in lower illustration) is one way citizens were "informed"; another was through work like that of the fire safety officer (top photo).

for special events are other materials developed for the city as a whole and for individual departments by the public relations unit or commissioned by it.

The public relations unit helps club groups—school, church, civic, or social—which want to study city government. The Jaycees, for example, initiated a series of "Know Your City Government" programs in neighborhoods . . . and this has stimulated further interest in Richmond services and facilities.

Information and Research Office Plans to Expand Services

After its first year, I & R survived a budget crisis. The PR service was retained and the staff of one was bolstered by addition of a full-time secretary. Projects for 1958 which the unit is undertaking are the setting up of more adequate information and complaint services to get direct answers and help to citizen writers and callers, and the establishment of a research library for the use of I & R and for all city departments.

PR Is No "Frill"

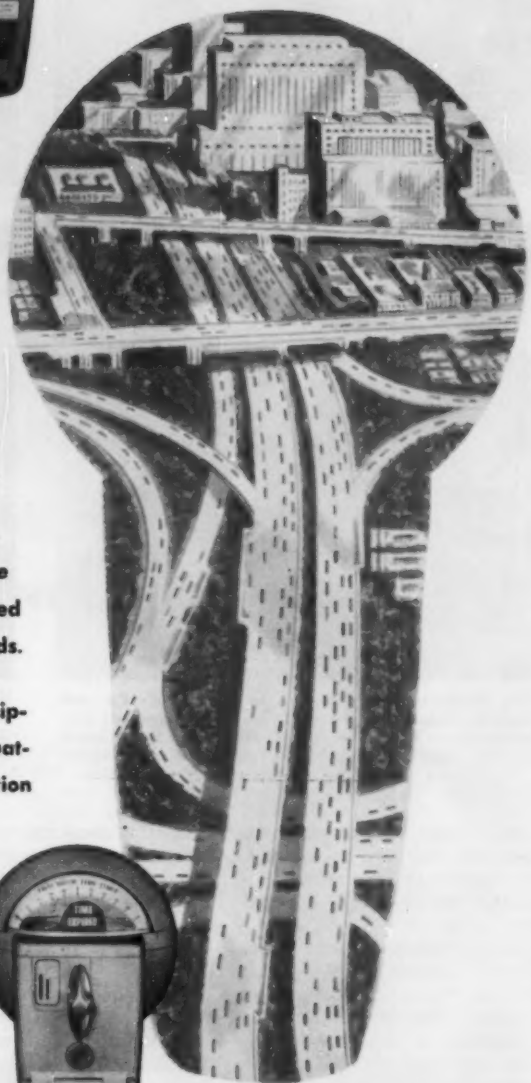
The general philosophy of ex-reporter Troubetzkoy has set the tone for a PR operation that isn't a "frill" of city government. She knows that "every letter and every meeting has PR impact when the city deals with citizens. Freedom of access to sources of news is the best selling point to the press and the PRO must be enabled to clear the way of blocks. When anything undesirable happens, it is usually better to face it with facts. Facts, made available to the press, even when they show the city at fault, gain confidence that will pay off in the long run."

Mrs. Troubetzkoy and Manager Edwards agree that "PR must show coincidence of city aims and public interest to keep government from becoming a handy target for vocal citizens. PR can gain valuable time for the city to make corrections in policy or practice. But it cannot (and does not) offset poor policies. There's got to be 'steak as well as sizzle.'"

New Use for "Retired" Fire Equipment

FIRE CHIEF John Kearney of Culver City, Calif., says that many old pieces of fire equipment are serving usefully far beyond their normal life span in many cities and towns in southern California. One of the most recent indications of this was the donation of a 29-year-old surplus "E & J Resuscitator" to the Hospital Civil De El Rosario, at Baja, Calif. The resuscitator has saved hundreds of lives in Culver City, and, according to Chief Kearney, will probably save a few hundred more.

modern planning
modern methods
modern meters



It takes modern equipment and progressive planning to cope with the ever increasing parking problem.

Whether placed on the curb or installed in an off-street lot, up-to-date DUNCAN-MILLER parking meters are geared to meet all municipal parking control needs.

Modern in design, DUNCAN-BUILT equipment includes functional features, accentuating today's thinking in economy of operation and low cost maintenance.

Obsolete or outmoded equipment cannot be expected to keep pace with current high volume parking situations. Look to the time-honored products of DUNCAN-MILLER for new ideas in design and engineering to meet your City's requirements.

DUNCAN-MILLER "60" ®

DUNCAN PARKING METER CORP.

835 NORTH WOOD STREET, CHICAGO 22, ILLINOIS • FACTORIES: HARRISON, ARKANSAS AND MONTREAL, P.Q., CANADA

Manufacturers of fully automatic and manual parking meters.

Buying Group Insurance, an Inventory, and Fast Mailing

BELOW is some news about city purchases of several different types of products as reported in December 20, 1957 *Letter Service* of The National Institute of Governmental Purchasing, Washington, D. C.

After an original inventory by the department of finance of ***San Angelo, Texas,*** some 5,000 to 7,000 pieces of equipment, from motor vehicles to pencil sharpeners, were marked with a decal and their particulars and pertinent data listed on two cards. The first was filed by inventory number and the second by department. Annual inventories will be required.

Group Insurance

A new employees' group insurance plan to which the ***City of Fullerton, Calif.,*** contributes $4 per month for each employee, offers $1,000 life insurance, $1,000 accidental death and dismemberment coverage, $25 accident and sickness weekly benefits for 26 weeks, and $10,000 major medical expense insurance. Cost to the employee per month is $3.40, with an additional $3.07 for all children, $6.25 for spouse only, and $9.32 for both spouse and children. The new plan was selected after more than a year of investigation and study by the Employees' Association and the City Staff. The city received bids from 25 companies and employed an insurance consultant to analyze the bids and to make recommendations.

Stuffing 1,306,000 Bills

Hand stuffing of tax bills into envelopes in ***Boston, Mass.,*** has been eliminated by the purchase of a $7,-00 machine which will stuff bills into window envelopes, seal and stamp them at the rate of 6,000 per hour. The machine freed 18 employees, now assigned to collecting tax money and keeping tax records. Boston annually mails 110,000 real estate tax bills, 20,000 personal property bills, 210,000 motor vehicle excise bills, 250,000 poll tax bills, 380,-000 water bills plus about 200,000 demand notices, most of these relating to poll tax and excise tax bills. The machine will be used by the fire department when it sends out 136,-000 fee collection notices.

Proposed Water Tank to Break a Record

THE Jamaica Water Supply Company plans to construct a 4,000,000 gallon water storage tank, the largest ever built on Long Island, N. Y. Construction will begin about April and the tank is expected to be completed sometime in September.

Although the 230-foot diameter tank will be 14 feet deep, only 3 feet will be above ground. Daniel J. Hennessy, president of the company, said that as a matter of public policy they build their storage tanks as far below ground as geological conditions permit so as to make them acceptable to home owners.

The new tank will occupy about a fourth of a fully landscaped plot of 2.7 acres. Plans call for planting the area in grass and encircling the tank with varied shrubs and plants set 10 feet apart. In addition, the property will be fenced with trees planted just inside the fence at 20-foot intervals. Shrubs will also surround the small booster pump building that is to be a part of the installation.

"Hmmm ...a bad case of corrosion"

CASE #7841

PATIENT: 8 Miles of 16" and 12" Cast Iron Water Supply Lines in Abington-Rockland (Mass.) Water District.

SYMPTOMS: Lack of water and pressure during periods of high demand requiring restrictions in the summertime.

DIAGNOSIS: Poor circulation due to regrowth of tuberculation after cleaning. Available water could not be delivered to consumers.

TREATMENT: The lines were cleaned and cement lined in place without interrupting service to consumers. In less than 8 weeks the entire job was completed.

RESULTS: Patient now sound and healthy; pipe capacity permanently doubled, no further summer restrictions, future maintenance costs were eliminated.

If your lines also show signs of suffering from corrosion, leakage or tuberculation, investigate the Centriline Process. Cleaning and cement lining in place has been a successful remedy for over 1,000 miles of water supply pipelines. Centriline hasn't lost a patient yet.

CENTRILINE CORPORATION

A subsidiary of the Raymond Concrete Pile Company

140 CEDAR STREET, NEW YORK 6, N.Y.
WOrth 2-1429

Branch Offices in Principal Cities of the United States, Canada, and Latin America.

New Salem pipe line to augment present system will add approximately 50 MGD capacity to city water supply system.

a line of growth... for Oregon's capital city

American Concrete Cylinder Pipe is helping Salem, Oregon to grow

A simple but important fact is that no city, however great its potential, can grow beyond the capacity and dependability of its main water supply system.

Recognizing this fact, and envisioning a population in 30 years that will require three times the maximum capacity of present water transmission lines, Salem, the capital city of Oregon, is carrying out a program designed to meet future needs.

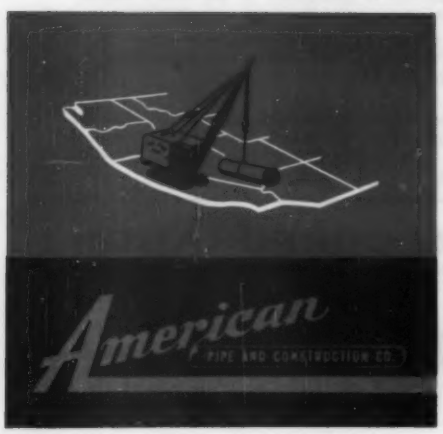
Under the direction of the City's Water Department Manager, John L. Geren, and the technical supervision of Consulting Engineers Clark and Groff of Salem, an 18-mile pipe line of 48" and 54" diameter American Concrete Cylinder Pipe is being installed by Lord Brothers, a general contracting firm of Portland, Oregon. This new line will triple the present capacity of the supply system.

The performance record of this type of reinforced concrete cylinder pipe has been so outstanding throughout the West that Salem can be confident that this water "growth line" will be giving efficient, economical service for many, many years to come.

Strength, permanence, sustained high carrying capacity, and trouble-free service are characteristics of American Concrete Cylinder Pipe which make it the right pipe for this forward looking city.

When planning your future water "growth lines," look to American's quality pipe line products, extensive production facilities and half century of experience.

Ask for complete information concerning the particular class of pipe that will meet your design requirements.



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Announcing the NEW

Surface Film Will Reduce Reservoir Evaporation

COATING United States water reservoirs with fatty alcohol compounds can conceivably produce a potential saving of 20 billion gallons of water daily. This amounts to approximatly one-third of our present industrial water usage.

In a paper presented at the annual meeting of the American Institute of Chemical Engineers, Russel G. Dressler, chemical processing consultant of San Antonio, Texas, and Arnold G. Johnson, chemical director, Chemical Products Division, Archer-Daniels-Midland Co. of Minneapolis, Minn., reported on the latest developments in the field of evaporation retardation.

Actual tests using monomolecular fil·ns on the smaller reservoirs show that savings in the range of 30-40% can be achieved, duplicating those obtained heretofore only in the laboratory or evaporation pan experiments. Future work on the engineering application of the film and cost studies will be done.

The two engineers estimated that reservoirs can be coated with fatty alcohol compounds one-ten-millionth of an inch thick at a total cost of $4.52 per acre-foot annually. Irrigation water is said to be worth about $6 per acre-foot and municipal water from $10-$40 per acre-foot.

Results of both laboratory and outdoor trials by the Bureau of Reclamation and other sources indicate that alcohol monomolecular films have no adverse effect on fish, aquatic plants, wild fowl or similar forms of life. The U. S. Public Health Service has pointed out that the materials themselves are of a low order of toxicity and has stated that no hazard to health would be anticipated in their use. Mr. Dressler and Mr. Johnson stated that the monomolecular films do not interfere with oxygen and carbon dioxide transfer between water and air.

Junkyard "Shape Up"

ALTHOUGH junkyards are allowed in Washington, D. C., they are not to look like them, reports the National Association of Housing and Redevelopment Officials. City officials are working up a single set of regulations which will keep these businesses from being eyesores and hazards to health and traffic. In the past, junkyard owners in Washington sometimes erected improper fences, loaded and unloaded collections in the streets, and maintained breeding places for rodents.

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- Simplicity of construction
- Unusual ruggedness
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All over the country and in foreign lands, it's the same story . . . MI-CO Manual Parking Meters are giving exceptional service, and are highly productive because they cost so little to maintain. And you can depend on it, that in five, ten and even fifteen years after installation, they still will be high revenue producers. *There's no question about it, MI-COs give you more for your parking meter dollars.*

If you are considering a new installation, replacing less efficient meters, or adding to your present setup, it will be to your advantage to investigate MI-CO. Write for complete information.

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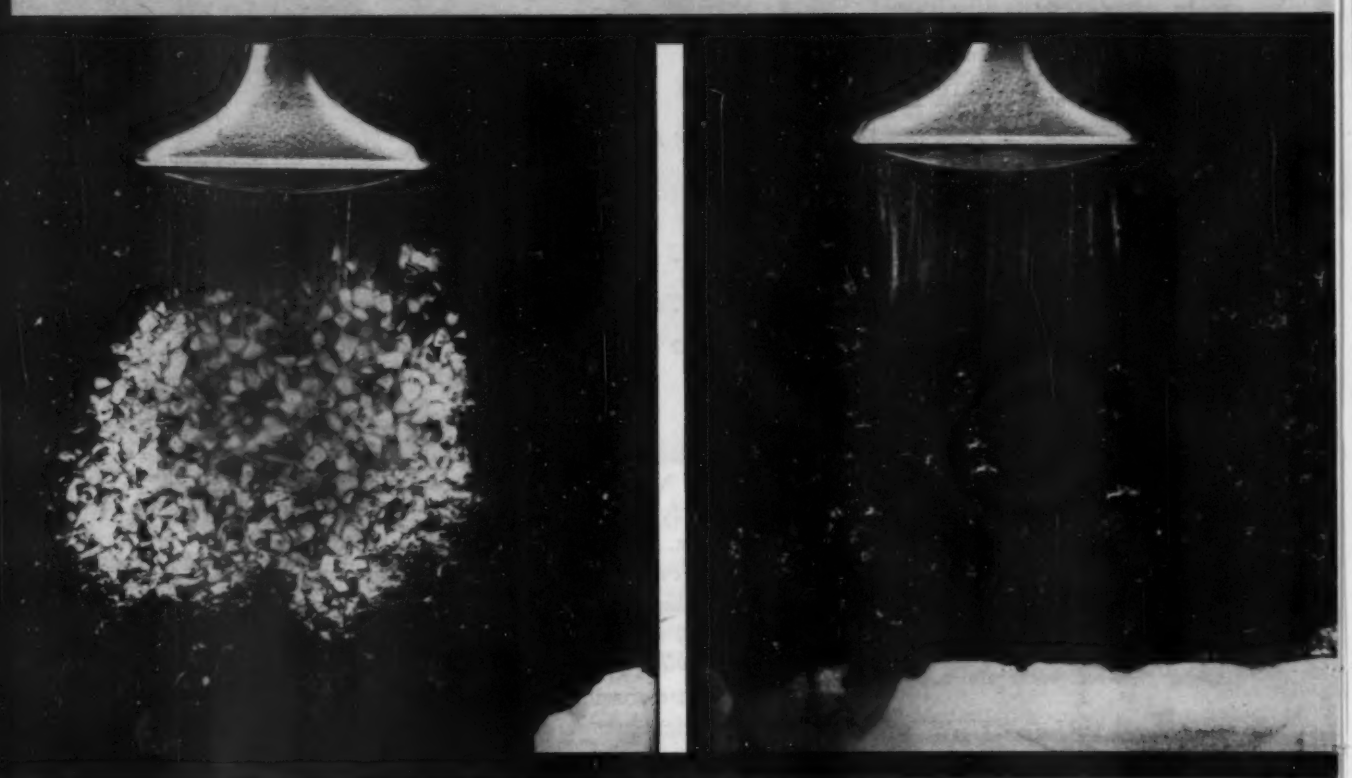
Announcing the NEW

CATIONIC BITUMULS

- **Coats "Treacherous" Aggregate**
- **Protects Your Cold-Mix Pavements and Surface Treatments Against Early Rains**



These unretouched photographs taken in our laboratory clearly show the remarkable ability of CATIONIC Bitumuls to coat and hold silica-crystal chips, and to stand up under early rainfall. Here are two samples of cold-mix materials. They are identical with this exception: the sample on the left was mixed with a conventional road emulsion; the sample on the right was mixed with new CATIONIC Bitumuls. No anti-stripping additive was used. Both samples were allowed to cure for 10 minutes; then subjected, as shown, to equally-metered showers of water. Results: the conventional emulsion almost completely washed off, while the CATIONIC binder still coats the silica chips and holds them firmly in position.

YOU NAME YOUR "HARD TO COAT" AGGREGATE—NEW CATIONIC BITUMULS WILL HANDLE IT!

Now—with new CATIONIC Bitumuls—you can treat "hard to coat" aggregate—damp or dry—fast and effectively.

CATIONICS represents a startling new departure in the making of asphalt emulsions. New CATIONIC Bitumuls because of its versatility and "native" affinity for all aggregates enables you to use damp, slick, "hard to coat" gravels and other hydrophilic aggregates.

This means you can build—

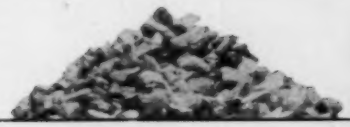
Better travel plant mix pavements
Better surface treatments

And, you get these better pavements at *lower cost* because with CATIONIC Bitumuls you can use many cheaper aggregates that are unsuitable for use with other binders.

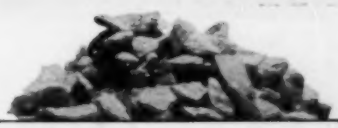
Because the product sets quickly, construction damage resulting from sudden rains is reduced to a minimum. In addition, the fresh paving mixture can be quickly rolled and opened to traffic. All of these benefits mean an extension of the working season into marginal weather conditions that normally would prevent emulsion paving work.

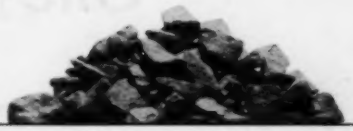
Storage, handling and application are much the same with CATIONIC Bitumuls as with conventional emulsions; however, care must be exercised in the preparation of storage facilities and application equipment. CATIONIC Bitumuls is available from certain of our strategically located plants. Our engineers are ready to discuss projects which you may wish to set up for trials of this new product with specific types of aggregate.

MARYLAND
REFERENCE GRAVEL


OREGON
CRYSTAL SILICA

PRINCE GEORGE COUNTY,
MARYLAND, GRAVEL


CALIFORNIA
MARBLE CHIPS


PENNSYLVANIA
REFERENCE STONE

OHIO
REFERENCE GRAVEL

MASSACHUSETTS
RHYOLITE

Here are representative samples of the types of aggregate generally regarded as "difficult" by designs engineers. New CATIONIC Bitumuls readily treats all of these. When cold-mixed in a mechanical paver CATIONIC Bitumuls gives thorough stone-coating. There is no stripping in the screw; no drag under the screed. Fast initial set and rapid cure even in deep placements assure early stability; almost immediate rolling.

On Surface Treatment work with slick, hard to coat, (hydrophilic) gravel or stone chips, the new **CATIONIC Bitumuls gives you more in terms of performance** than other binders: rapid set; earlier rolling; faster acceptance of traffic; better cover-stone retention.

Call your nearest American Bitumuls office for information on CATIONIC Bitumuls.

American Bitumuls & Asphalt Company

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Inglewood, Calif. Oakland 1, Calif. Portland 8, Ore.

One Year's Operation Removes

Rubber-tired loader not only proves its worth on sanitary-landfill operations but does multifold tasks

By JOHN H. KENNAUGH, *City Manager, Buchanan, Mich.*

OUR desire to achieve the most efficient use possible of all municipally-owned equipment led this city to purchase a rubber-tired tractor for sanitary-landfill operations. Although many questions and doubts concerning the use of such equipment existed at the time of purchase, 12 months of operation have quieted the majority of our fears.

Our past experience with a track-type machine has been satisfactory. However, our landfill operations, like those of many smaller communities, do not warrant the full-time use of heavy equipment. We wanted a machine that can work the landfill operations, be utilized on other work, and be able to move from job to job under its own power. Although we utilized the track-type machine for other jobs, 222 hours of such work required 60 separate loading and unloading operations, an expensive as

Buchanan is extremely fortunate in having an ample supply of sand at the disposal site to use as cover for the refuse.

Curb and gutter construction (left) and water main work (right) are only two of the many jobs handled by the rubber-tired loader in addition to refuse disposal operations.

Equipment Selection Doubts

well as a time-consuming procedure.

We questioned the life span of tires and their efficiency in covering and compacting all kinds of refuse. As far as we know, no other community employed a rubber-tired loader for this type of work, but the advantages of greater speed and versatility led us to experiment and then purchase a Michigan Model 75A tractor shovel, equipped with four 13.00 x 24, eight-ply Goodyear Hard Rock tires.

A description of our operations appeared in the September 1957 issue of THE AMERICAN CITY ("Rubber-Tired Tractor Successfully Handles Sanitary Landfill Operations," p. 110), so will not be repeated. *The important item is the success we have experienced over the past year.*

Only on five occasions did we need the use of a spare tire. A spike caused one puncture, and fractured tube stems accounted for the other four tire troubles. On an average, one man can remove the damaged tire, install the spare and repair the damaged tire in about two hours.

During the 12-month period, about 25% of the tire tread has worn off.

(Continued on page 155)

Table I—Loader Operation During First 12-Month Period

Project	Hours	Project	Hours
Landfill	867	Parking Lots	35
Streets	529	Park & Cemetery	8
Water	98	River Dock	3
Sewer	30	Police Range	11
Memorial Field	34	Private Work	8
Special Assesments	66		
		Total	1,689

Table II—Garbage and Waste Collection Costs

	Wages	Material Supplies	Unclassified	Total
1956				
November	$1,579.60	$53.50		$1,633.10
December	1,351.85	4.50		1,356.35
1957				
January	1,222.80	31.35	$64.32	1,317.87
February	1,303.80			1,303.80
March	1,598.60	225.25		1,823.85
April	1,717.95	103.36		1,821.31
May	1,777.75	119.24		1,896.99
June	1,450.65	3.75		1,454.40
July	1,500.40	14.35		1,514.75
August	1,919.35	2.25		1,921.60
September	1,552.30	4.50		1,556.80
October	1,567.65	10.00		1,577.65
Total	$18,542.10	$572.05	$64.32	$19,178.47

Revere's modern Endoval Mercury Luminaire has reversible slip fitter, providing a choice of horizontal or 10° tilt for a variety of street lighting applications. Housing is light diecast aluminum alloy. Reflector is of heavy gauge Alzak finished aluminum.

Revere's No. 2284 Endoval Mercury Luminaires mounted with 10° tilt, 29 ft. above grade, with 83 ft. opposite spacing. Average illumination for this newly surfaced black-top pavement is 3 foot-candles. Overhead wiring takes advantage of existing power after the removal of a street car line.

REVERE PLANNED STREET LIGHTING

Is your city in need of more adequate street lighting? Do you plan modernization of existing installations, or new lights for new streets, or both? Revere Planned Street Lighting provides modern, glare-free illumination, intelligently engineered to your lighting needs and budget requirements. Revere's *only* business is outdoor lighting. The services and specialized experience of your Revere sales engineer are available to help solve any city lighting problems. Write for his name, and latest Revere catalog.

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Tire trouble is most infrequent for the loader—particularly at the dump site—since Buchanan recognizes that tire cuts and tire chipping can easily be prevented by first dumping cover material over the refuse and then compacting it.

Although some chipping took place, it has not been enough to shorten tire life to a significant degree. The operator dumps sand over the refuse before driving on it, thereby reducing the possibility of tire cuts. From all appearances, the tires should last another two years.

Other Uses

Besides sanitary landfill operations other uses account for slightly over half the 1,689 working hours of the unit during the year. About one-third of the total time went into street construction and maintenance work. Other jobs include construction of curbs, water mains and sewer lines, as well as tree-removal operations. ***Table I*** lists the number of hours of machine time that went into the various operations.

The fact that the rubber-tired vehicle can move around quickly without the need of a truck and trailer accounts for its popularity in our city. Our records show that on an average, the crawler-tractor operated approximately 25 hours per week while the rubber-tired unit operated about 32 hours a week.

Total operating costs for the landfill operations over the 12-month period came to $3,255.56. This is broken down in the following manner:

Wages	$2,110.50
Material supplies	399.83
Unclassified	290.66
Gasoline	427.89
Oil	26.68

The loader used 2,517 gallons of gasoline and 31 gallons of oil. ***Tables II and III*** give monthly costs of garbage and waste collection and landfill operation.

A Unique Feature

Buchanan's operation is somewhat unique in that it obtains excellent sand cover material from banks surrounding the disposal site. However, we have had opportunity to do some heavy excavating with the loader and feel that it is also suitable for operating a trench-type fill.

The present site is less than two miles from the farthest customer and is located just outside the city limits. The terrain is made up of hills surrounding swamps. We started operations at one end of the swamp as a renovation program.

Of considerable significance to communities the size of Buchanan (population 6,100) are the many additional services provided by the unit at relatively no expense. This is important in maintaining maximum efficiency at all times.

Our experiences have shown that early doubts were unfounded and we hope this and our previous report in the September issue will help others in resolving similar problems.

Table III—Landfill Operation Costs

	Wages	Material Supplies	Unclassified	Total
1956				
November	$179.50	$3.50	$32.66	$215.66
December	137.20	298.43		435.63
1957				
January	135.60		8.00	143.60
February	171.15			171.15
March	126.10	50.57		176.67
April	185.10			185.10
May	154.70	6.52		161.22
June	143.90			143.90
July	161.00			161.00
August	278.60	40.81	250.00 (Land)	569.41
September	204.80			204.80
October	232.85			232.85
Total	$2,110.50	$399.83	$290.66	$2,800.99
2,517 gallons of gasoline				427.89
31 gallons of oil				26.68
Total				$3,255.56

Mayor Moves to Smaller City

SOME PEOPLE may take pride in seeing a city grow and spread out all over the countryside, but not Douglas Preston, former mayor of Fairbanks and 1955-56 president of the League of Alaskan Cities. Nostalgically recalling the days less than ten years ago when he could drive just a few miles outside the city to fish and get away from it all, Mr. Preston resigned his position as mayor of Fairbanks last fall and immediately accepted appointment as City Clerk in Kodiak, a city of about 3,000 persons on Alaska's Island of Kodiak. A recent survey in the Fairbanks area revealed an area population exceeding 50,000 and a city population of slightly over 15,000.

Mr. Preston succeeds Nick Frost, who was elected to the post of city magistrate.

Hugh Pomeroy uses the Dictet en route to his office.

Dictating Device Becomes Aide to Planning Director

Portable voice recorder makes driving time valuable

HUGH R. POMEROY, Director of Planning for New York's Westchester County, is a man with a work schedule that most people would consider a killing one.

In addition to directing an active planning program requiring the cooperation of the county's towns and cities, he is a much-sought-after speaker and moderator at evening meetings of civic organizations, both in the county and in other areas, that are interested in their local community planning problems. As a widely-recognized authority on planning he may be called as a consultant on a difficult planning problem by a municipality in some other part of the country. He is frequently called upon to testify as an expert where controversial issues are involved.

Uses Recorder in Auto

With a schedule like this to maintain, he has to make full use of his time. He drives between his home and his office in the County Office Building in White Plains—40 minutes each way. Since he cannot read the paper like a train commuter, and knows the scenery by heart, his mind is usually occupied with the work of the day past or the day ahead. A few months ago he decided that this 40 minutes twice a day could be employed more constructively if he could record, while they were fresh in his mind, those results of his thinking which would be helpful in preparing memoranda, reports, and speeches.

Obviously, he could not make hand notes while driving, but he was able to find a new, portable voice recorder known as the Dictet, made by Dictaphone Corporation. Weighing only two pounds, 11 ounces, and about the size and shape of a home movie camera, the recorder now regularly accompanies him in his car. His verbally dictated notes are transcribed in typed form after he reaches his office.

Under ordinary circumstances, the recorder's small microphone can be clipped to the user's coat lapel, but to shut out traffic noises, particularly in warm weather with the car windows open, Mr. Pomeroy plans to make himself a wire device that can fit to his head and use to hold the microphone close to his mouth.

The Dictet has also accompanied Mr. Pomeroy when he has had to travel to other parts of the country in connection with his activities as a consultant. On such occasions he frequently uses the recorder, usually in his hotel room during the evenings, to record notes and make memoranda. The recorder's easily replaced magazine holds enough magnetic tape for a full hour's recording, but he always carries an extra magazine with him in case the need arises.

Mr. Pomeroy has testified as an expert in some 40 controversial cases during the past 10 years, many of them dealing with zoning or rezoning. Before he mounts the witness stand it is often necessary for him to make a first-hand survey of the area so that he may be familiar with all its physical characteristics, both natural and man-made. At one hearing his direct testimony took only 20 minutes, but this was followed by five solid hours of cross-examination.

Making hand notes during an area survey can be difficult, as he is usually accompanied by one or more persons whose comments he has to take in through his ears while using his eyes to observe and his hands to make his notes. He has not had occasion to make a survey of this kind during the short time he had the Dictet, but he plans to use it to record his observations the next time he surveys an area prior to testifying.

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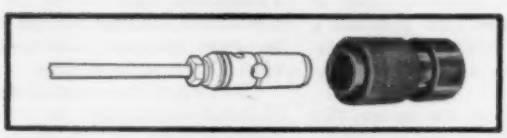
TO CONNECT SEWER RODS TO POWER DRIVE*

Spring-loaded snap lock . . . no Coupling Pin or Spring to get lost

1. Pull Collar Back
2. Insert Rod Coupling
3. The Groove around Coupling makes Connection



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*Shown installed on PD-50-RL Quick Reverse Power Drive

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As Midland Grows

Midland's new reservoir increased storage capacity from 3.5 to 8.5 million gallons. Tank in background serves the high-level distribution system.

By J. M. ORMAN
City Manager
Midland, Texas

MIDLAND, Texas has had a rapid population growth since 1940. In order to meet the water demands caused by this increase, the city, on July 24, 1956, entered into a contract with Parkhill, Smith and Cooper, Consulting Engineers of Lubbock, Texas, to make a detailed study of water needs. This covered water storage, ground-water storage and booster pumping facilities and recommendations for necessary facilities to meet future requirements. In addition, the engineers were instructed to study the possibility of extending the upper level water distribution system in order to eliminate low pressure areas in the upper portion of the low-level distribution system.

These studies resulted in the construction of a 5,000,000 gallon storage tank, the installation of two booster pumps, and connecting facilities.

J. M. Orman

At present, we obtain all our water from four well fields, each with its own reservoir and pumping station. These are:

Cole Park Field: 14 wells; 1,000,000-gallon reservoir and two pumps, a Fairbanks-Morse unit rated at 1,300 gpm and an Allis-Chalmers unit rated at 2,800 gpm. About 8,000 feet of 14-inch pipe connects the pumping station with the distribution system.

Rosedale Field: 9 wells; 500,000-gallon reservoir and two pumps, a Fairbanks-Morse unit rated at 1,200 gpm and an Allis-Chalmers unit rated at 3,500 gpm. The discharge from this station is near the distribution system. Combined capacity of Cole Park and Rosedale fields is about 6.5 mgd.

Wadley Field: 12 wells; capacity 5.5 mgd; 370,000-gallon reservoir and three pumps, two Peerless units—one rated at 1,500 gpm and one at 2,500 gpm—and a Gould pump rated at 2,800 gpm that discharges directly into the distribution system.

McMillan Field: 34 wells; capacity 11.5 mgd; 4,000,000-gallon reservoir and three Peerless pumps—one rated at 5,000 gpm, one at 6,500 gpm, and one at 8,000 gpm—and three Gould pumps of 9,000-gpm capacity each. About 44,000 feet of 30-inch main connects the station with the distribution system. A second pumping station known as the Edgewood station and located about 32,000 feet from the well field, pumps into a 1,000,000-gallon elevated storage tank which in turn maintains adequate pressure in the upper level distribution system.

The Cole and Rosedale fields are located southeast of the city, the Wadley field is north and the McMillan field is northwest of the city.

We have a high- and low-level distribution system. The low-level system contains two elevated storage tanks, a 300,000-gallon tank in the downtown area and a 2,225,000-gallon standpipe in the western part of the city. The upper-level system has a 1,000,000-gallon elevated tank mentioned in connection with the McMillan Well Field and Station.

New Construction

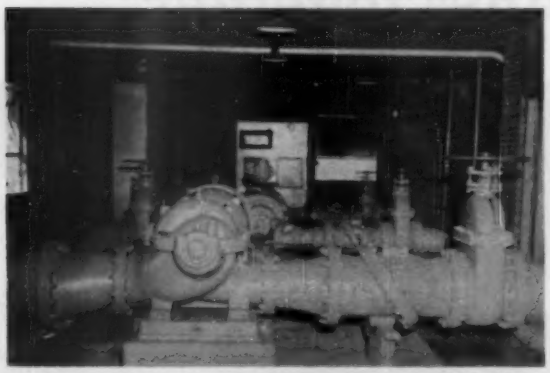
Based on the estimated peak days usage in 1962 and a determination of the approximate points at which the supply would enter the system at that time, our engineers recommended construction of a 5,000,000-gallon storage tank on a piece of high ground just north of the existing high elevation system tank. This location permitted the use of a little over 8,000 feet of the 30-inch main from McMillan Field for supply from the new tank to the low level distribution system.

The United Construction Company of Dallas constructed the prestressed concrete tank in accordance with the design by The Preload Company, Inc., of New York, N. Y., with The Preload Company handling the prestressing and gunite cover coating phases of the work. The tank has a diameter of 161 feet and a water height of 32 feet.

In connection with the new tank, we added to the existing Edgewood pumping station a 4,000-gpm high

So Does Its Water Storage Capacity

New tank and booster station addition strengthens distribution without need for new mains



The low and high service booster pumps are controlled by water levels in the 2.225 mg standpipe and 1.0 mg elevated tank, respectively. The Edgewater booster station fills the high-service system elevated tank (right) and also pumps water from the 5.0 mg reservoir into the low level system.

service pump and a two-speed (13,000 gpm and 8,000 gpm) low-service pump, both Fairbanks-Morse units. About 1,050 feet of 30-inch steel cylinder concrete pipe, supplied by United Concrete Pipe Corporation, connects the new reservoir, pumping station, and existing 30-inch line from the McMillan Well Field.

Bristol telemetering instruments record the water levels and also control pump operation. These instruments actuate the low speed starter on the two-speed low-service pump when the water in the 2.225-mg standpipe is 4 feet below the overflow level and inactivate the starter when the tank is filled. The high-speed starter is actuated when the water level drops to 6 feet below the overflow.

Pressure Control

A Mercoid pressure control switch starts the high-service pump when the water level in the 1.0 mg elevated tank drops to 6 feet below the overflow and shuts it off at 2 feet below the overflow.

The height and elevation of the new reservoir is such as to allow for gravity flow into the distribution system except during peak hourly demands. Its overflow elevation is above that of the 0.3 mg and 2.225 mg tanks on the low-service system, thus, Golden-Anderson altitude valves were installed on these two tanks to prevent their overflow.

Pressures Increased

With the additional 5,000,000 gallons of storage and any extra water needed coming in via the McMillan line, no additional mains are required to adequately serve the system through the estimated maximum day of 1962. Based on estimate demands on that day, there would be a total draft from all storage except the 1.0 mg elevated tank on the high-level system of 2.82 mg. There would be no draft beween 7 and 8 o'clock in the morning, a filling of the tanks beween 10 o'clock at night and 7 o'clock in the morning, and a flow from storage between 8:00 a.m. and 10:00 p.m. Thus, we are in good shape until sometime after 1962 as far as distribution is concerned.

Since the new reservoir was placed in service on June 20, 1957, pressures in one section were stepped up from 15 psi to 27.5 psi and in another section from 15 psi to 40 psi.

One item of interest was the sterilization of the new reservoir. Our Fire Department used high-pressure hoses to spray the concentrated chlorine solution on the tank interior, eliminating the loss of almost 5.0 mg had the tank been completely filled and drained.

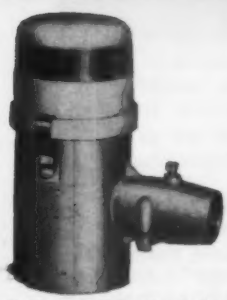
The cost of improvement came to just over $250,000 with funds being obtained from a revenue bond issue.

New City Clerk, New Accounting System

JUNEAU, Alaska, has a new city clerk and a new accounting system. Almost concurrently with the new appointment of Harold Cargin, the city began converting its accounting methods to a complete machine system using modern Burroughs equipment. According to Mayor M. L. MacSpadden, the new system will streamline the city's accounting procedure and make possible savings from $3,000 to $5,000 this year and even greater savings in the future.

Wheeler Street Lighting experts put their "heads" together...

to bring you the most complete line of metal heads, including ballasts and controls to meet the requirements of every street lighting system!



Small Photo-Electric Head for EEI-NEMA Screw Neck and Groove Neck Reflectors.

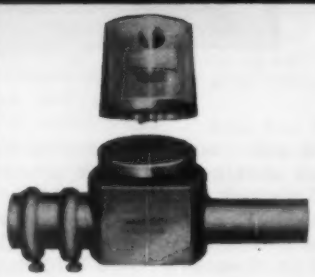


Photo-Electric Bracket Extension with Twistlock Control Receptacle. Control Shown Separately.

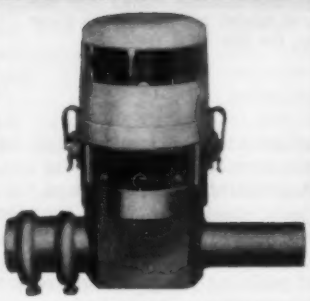
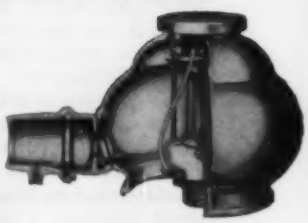
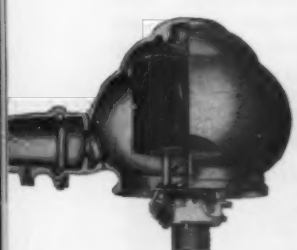


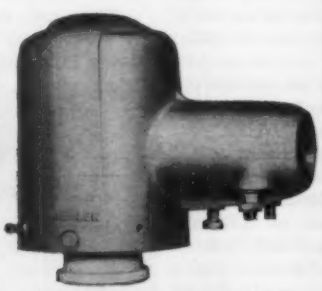
Photo-Electric Bracket Extension to add Photo Control to Existing Multiple Street Lights.



Large Multiple Head with Twistlock Control Receptacle. Cutaway View.

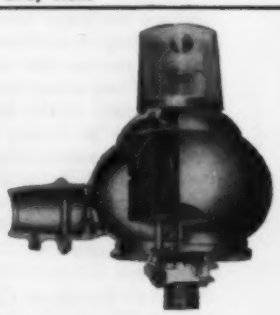


Large Multiple Head with In-Head Ballast for 100 or 175 watt Mercury Lamps.



Small Multiple Head with Foolproof Bayonet Multiple Socket for Easy Lamp Replacement.

Small Head with Twistlock Control Receptacle.



Large Multiple Head with Twistlock Control and In-Head Mercury Ballast.

Not shown but available — heads for external wiring — heads to take all makes of Twistlock controls — top mounted heads without controls.

For complete details, write for new Wheeler Bulletin Section 3-7

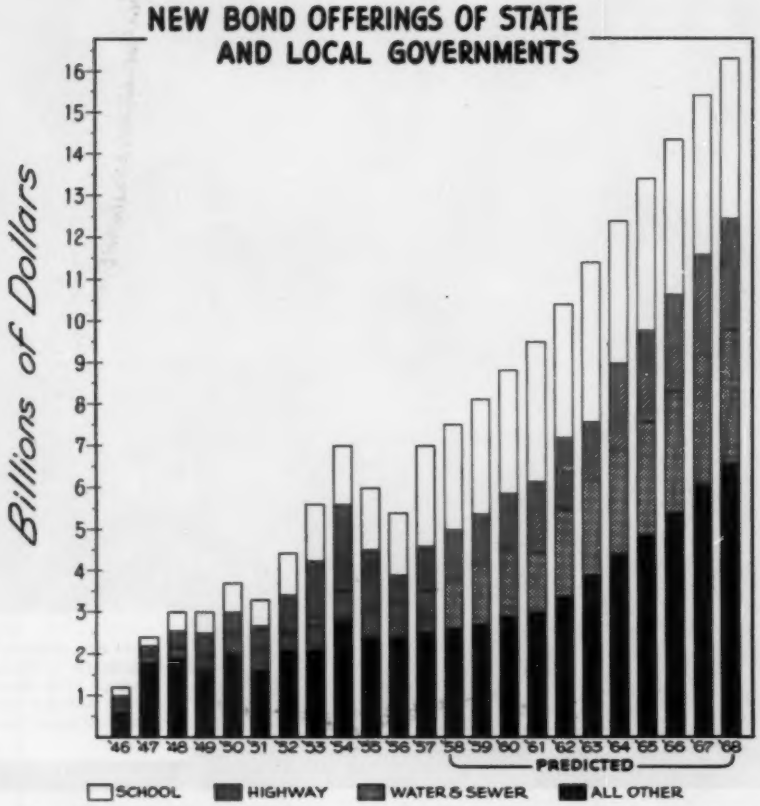
Wheeler Reflector Company (Division of Franklin Research Corp.) 275 Congress St., Boston 10, Mass.

Established 1881 — our 76th year

Wheeler represents the most advanced engineering in Street Lighting

A broadened market for municipal bonds is needed to absorb the next decade's big jump in city capital expenditures

By HARRY L. SEVERSON
*Financial Economist and Bond Analyst**



Mr. Severson includes bridge and tunnel construction in his highway projections, and from 1946-1957 in the "all other" category includes unclassified school, highway, water and sewer bonds.

Selling Tomorrow's Record Volume Of Municipal Bonds

IN less than ten years, the nation's municipal and state governments will be issuing well over twice the volume of bonds they do today. They will be doing this in an attempt to keep pace with the construction demands placed on them by rapidly burgeoning urban population for new schools, streets and roads, water and sewage treatment facilities, etc.

Since World War II the economic expansion of the nation has been so rapid that projections showing new highs are likely to be taken as a matter of course. However, when consideration is given to the fact that the bond market has been choking up periodically on an annual volume of $7 billion of new issues, the task of developing a market within ten years which can absorb $15 billion annually is a challenge.

This article outlines the growth of construction expenditures of state and local governments and the new bond offerings as well as some of the major problems and some possible solutions in marketing this steadily mounting volume of new tax-exempt securities.

During the depression of the 1930's very few new public works were undertaken, and during World War II this type of construction came to a virtual standstill. Consequently, large backlogs developed. In 1947 construction expenditures of state and local governments began to increase and have been rising rather rapidly ever since. By 1951 they had reached $6.4 billion, and the volume in 1957 will be over $11 billion. In spite of the large amount of new construction of public works the backlogs continue to plague us. This, combined with the growth in the economy, are strong forces pushing upward on the demand curves. By 1962 construction expenditures of these governments are expected to

* Mr. Severson is a consultant on the municipal bond market for both issuers and investors, and has his offices in New York City. This article is based on a detailed study of the market for local and state bonds prepared by Mr. Severson for the Bankers Trust Company of New York.

Wheeler represents the most advanced engineering in Street Lighting

Night view, showing the "Leisure House," customer-service building, center of Tampa Electric's active "Live Better Electrically" program. The simplicity of HAPCO's Venetian Column design blends with the modern architecture and maintains a feeling of spaciousness in the well planned parking area.

For Tampa Electric Company...

Trim, modern appearance of HAPCO Poles and Brackets complements "Live Better Electrically" program

By day, the spacious parking area at Tampa Electric Company accommodates office employees and visitors. At night, mercury vapor lamps mounted on HAPCO Poles and Brackets light the way for customer meetings and demonstrations at the "Leisure House." Here, through scheduled demonstrations by trained Home Economists, supplemented by displays of the latest electrical appliances, lighting and air conditioning, Tampa residents truly learn how to "Live Better Electrically."

Although atmospheric corrosion is a major problem in coastal or industrial areas, long service life can be expected from the 24 HAPCO Poles and Brackets here, since both are made from corrosion resistant aluminum. After being "spun" from aluminum alloy, HAPCO Poles and Brackets undergo special heat treating for maximum structural strength. Aluminum's attractive silver grey finish requires no initial or maintenance painting, and lightness in weight means additional savings in transportation and erection costs.

In the complete HAPCO line of Standards and Brackets are designs for all types of outdoor lighting installations. For more information, write to Hubbard Aluminum Products Company, 6301 Butler Street, Pittsburgh 1, Pennsylvania.

Tampa Electric's new headquarters are located on Dale Mabry Highway, midway between the northern city limits and Gandy Boulevard. At night, this heavily travelled, seven mile section of U.S. Route 92 comes brilliantly alive with light from 259 mercury vapor luminaires mounted on 208 HAPCO 8-foot Brackets and 51 HAPCO 6-foot Brackets.

HUBBARD ALUMINUM PRODUCTS COMPANY
Division of Hubbard and Company
Pittsburgh 1, Pennsylvania

state and local governments was much higher than 1956, and when

location of more power to raise taxes

reach $18.1 billion and continue upward to $25.2 billion by 1968.

These projections appear to contain fewer uncertainties in the years immediately ahead than do most economic forecasts. In 1956, for example, over 80% of construction expenditures were for the three main purposes — schools, highways, and water and sewer — and these programs are fairly well established in public policy. The growth in the school population makes necessary new classrooms; Congress has committed the nation to a gigantic highway program; and public health considerations make necessary extension of water and sewer facilities. Improvement in the miscellaneous group, particularly urban renewal and mass transportation, are likely to proceed at an accelerated rate in the latter part of the next decade.

In general, the same forces that have caused the economy to expand so rapidly are creating demands for additional public improvements. However, six factors that are pushing upward on the demand curve for public works call for special mention:

1. ***The rapid rate of population growth,*** combined with a tendency toward a greater per capita use of the services provided by local governments have placed a heavier load on many facilities. A decade has passed since the close of World War II and the decline in the birthrate which was so generally predicted has not taken place. On the contrary, 4.2 million babies were born in 1956—the all-time high. On the other end of the population curve, advances in medical science are lengthening the span of life.

2. ***A long-term growth in business activity.*** In addition to the increased load caused by the larger volume of business, some of the newer manufacturing techniques, for example, require the use of more water and result in a greater volume of waste in forms which make disposal difficult.

3. ***The concentration of most of the population growth in the suburbs*** and the construction of so many of the new industrial plants in the outlying areas has greatly extended the areas in which urban services must be provided. The varying intensity of land uses which results from this type of decentralization adds to the problems (and costs) of providing urban services.

4. ***New demands for more municipal construction generated by other capital improvements.*** New factories increase the load on all types of public services, and new freeways create a demand for access roads, as well as more parking spaces and ultimately for more recreational areas. Furthermore, improvements in one line tend to make obsolete equipment in other spheres seem even more unsatisfactory.

5. ***There has been a reversal in the attitude toward public works in the past 25 years.*** During the depression, the phrase "public works" became associated with such words as "relief" and "boondoggling," and references to them were apt to invoke a cynical response connoting graft or at least waste. The situation currently is quite different, as the emphasis now is upon the contributions which schools, highways and other improvements can make to the good life.

6. ***These new improvements are being made at increasing costs.*** Rights-of-way for the new freeways through the centers of cities are extremely expensive. When additional water is required in large quantities it is often necessary to bring it in from a greater distance. Furthermore, the costs of construction are showing a decided upward trend—even greater than the increase in the general price level.

New Bond Issues

The upward trend of new bond offerings has been irregular. In 1946 state and local governments brought $1.2 billion to the market which increased each year until an all-time high of $7 billion was reached in 1954 when toll road bonds were at the height of their popularity. In 1955 there was a sharp decline to $6 billion, and in 1956 new offerings receded further to $5.4 billion. In 1957 the volume of new issues of

Severson Projections

Construction Expenditures of State and Local Governments*

(As of December 1957)

1946-1968—(In billions of dollars)

	Total	Schools	Highways	Water and Sewer	All Other
1946	1.5	.1	.9	.2	.3
1947	2.6	.3	1.4	.4	.5
1948	3.6	.6	1.7	.5	.8
1949	4.9	.9	2.1	.6	1.3
1950	5.4	1.1	2.2	.7	1.4
1951	6.4	1.5	2.5	.8	1.6
1952	6.7	1.6	2.8	.8	1.5
1953	7.2	1.7	3.1	.9	1.5
1954	8.5	2.1	3.8	1.0	1.6
1955	9.2	2.4	4.0	1.1	1.7
1956	10.0	2.5	4.4	1.3	1.8
1957	11.3	2.9	4.9	1.4	2.1
1958	12.4	3.2	5.5	1.4	2.3
1959	13.8	3.5	6.2	1.7	2.4
1960	15.2	3.8	6.9	1.9	2.6
1961	16.7	4.1	7.5	2.1	3.0
1962	18.1	4.3	8.0	2.3	3.5
1963	19.5	4.5	8.4	2.5	4.1
1964	20.7	4.6	8.5	2.8	4.8
1965	21.9	4.7	8.6	3.1	5.5
1966	22.9	4.8	8.6	3.3	6.2
1967	24.1	5.0	8.7	3.5	6.9
1968	25.2	5.2	8.8	3.7	7.5

*Sources of data:
1946-1953: "Construction Volume and Costs, 1916-1954, a Statistical Supplement to Construction Review," U. S. Department of Labor and U. S. Department of Commerce.
1954: "Construction Review," June 1956, U. S. Department of Labor and U. S. Department of Commerce.
1955-1956: "Construction Review," June 1957, U. S. Department of Labor and U. S. Department of Commerce.
1957: partially estimated.
1958-1968: estimated by Harry L. Severson.
All figures include federal aid.

Special analysis Moly alloy steel, mill rolled to uniform gauge. Heat treated to 460-512 Brinnell hardness and tensile strength of 200,000-275,000 p.s.i. Selected XX White Ash handles. Patented steel I-beam reinforcement stops handle breakage. Fully finished. Uniform quality 12 to the dozen. Workers like them for perfect hang, balance and finish . . . and they last 2 to 3 times as long as others.

See Wood for non-sparking, acid resistant ALUMINUM shovels, too!

THE WOOD SHOVEL & TOOL CO.
Piqua, Ohio

state and local governments was much higher than 1956, and when all figures are in it is likely that a new high will have been recorded. With such a large volume of construction to be financed, the volume of new offerings will continue to rise. By 1962 an annual volume of $10 billion is expected, and by 1967 a further increase to $15 billion seems likely.

The Necessity for a Broader Market

The character of the market for state and local bonds is being altered by the constant pressure to sell new issues. As long as the supply of these bonds was declining, the issuers were in an extremely advantageous position. With the steady increase in supply of these bonds, this situation has changed—and the relative advantage in the bargaining process has gradually shifted to the investors. The most urgent needs for tax exemption have long since been filled with the result that it has been necessary to price these bonds so that they will be attractive for portfolios where tax exemption is less important.

Astute financial officials are acutely aware of this erosion of the value of tax exemption, and that it can be slowed up only by finding new outlets for these bonds. The following incomplete list of methods for attracting additional buyers which are either being used or are being seriously considered gives an indication of the many possibilities (and combinations) that can be of assistance in doing this:

1. ***Campaigns to interest individuals in the lower income tax brackets.*** As the premium paid for tax exemption declines, more individuals can afford to invest in such bonds. There are, however, practical problems in tapping this market. Under present conditions the gross profit margins are not large enough to make it feasible for dealers to attempt to develop a market for small blocks.

2. ***Tailoring offerings to the wishes of prospective investors.*** With the profound changes taking place in the capital market it is necessary to abandon stereotyped thinking particularly in the tax-exempt sector. Traditional "call" features, for example, make some issues appear unattractive to certain managers of portfolios where funds are accumulating. In certain cases a modernization of the basic statutes under which the bonds are issued may be desirable. This may include the allocation of more power to raise taxes to local units which have heavy responsibilities.

3. ***Allowing investment companies to pass on the tax exemption to the beneficial owners.*** This principle has the advantage of assisting local governments in financing needed improvements without interfering with established federal, state, and local interrelationships. Investors who act in a corporate capacity would be treated in the same manner taxwise as if they made similar commitments as individuals. The size of the market which would be opened up by such a law would depend upon the manner in which the legislation is drawn. If a broad bill, allowing all investment companies to pass through the tax exemption to their stockholders is enacted, a large volume of bonds will be absorbed.

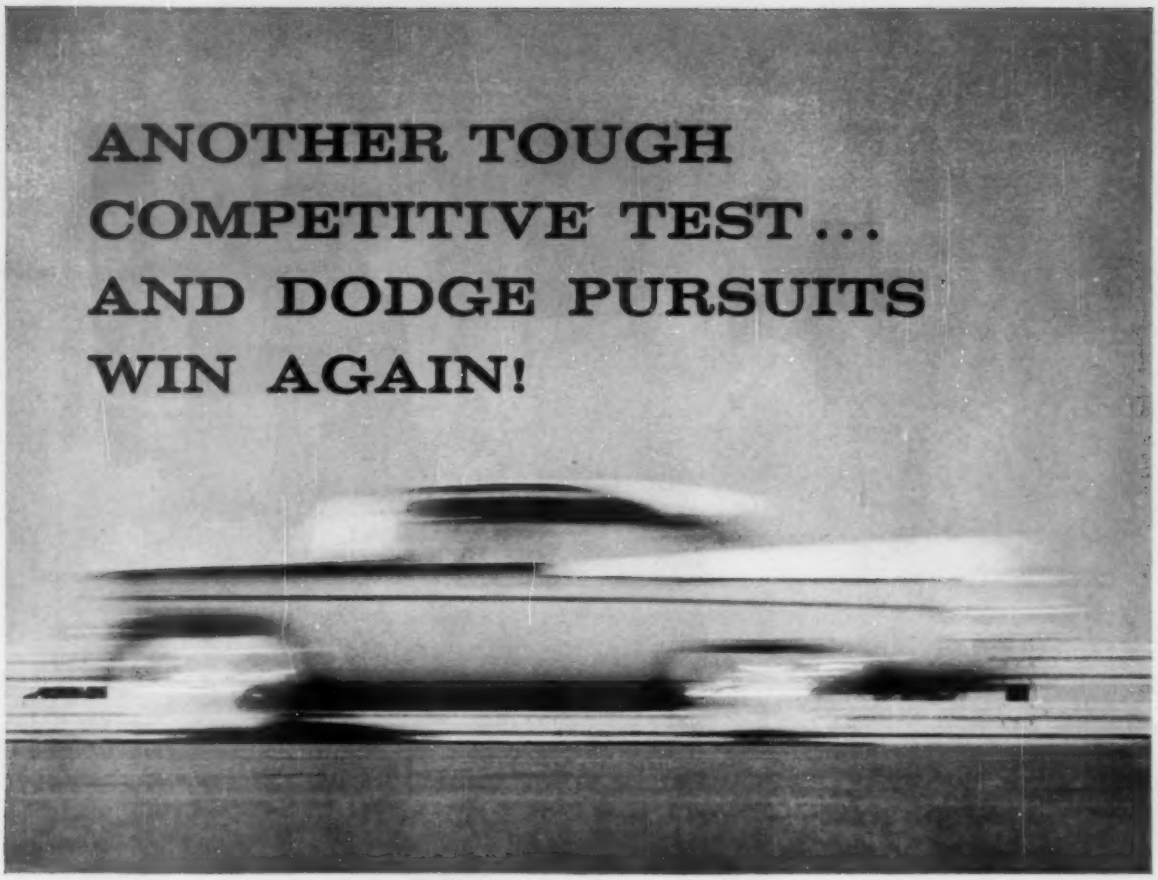
4. ***Allowing savings and loan associations operating under federal charters to buy and hold bonds of state and local governments.*** In recent years savings and loan associations have been growing rapidly, and some of the federally chartered institutions would doubtless welcome the opportunity of buying sound local issues.

5. ***Guarantees of bonds of little-known local governments by the federal or state governments.*** There are precedents for this in other fields, the best known of which are the FHA and VA guarantees in the field of home mortgages, although the analogy is not entirely valid since in the case of mortgages the pledge of the property itself tends to reduce the risk.

6. ***Creation of authorities which lend money to (or buy the bonds of) local governments and sell their own obligations to the public.*** Such authorities may serve a useful purpose in the case of sound credits which are not widely known, but it is well to remind ourselves that combining a group of weak credits will not result in a sound bond issue unless the authority has access to some other source of funds. In most cases, a local government can borrow more economically by issuing a general obligation bond than by creating an authority.

7. ***Direct acquisition by the state or federal government of bonds not otherwise salable.*** The activities of the RFC in the 1930's provide a precedent for this. This type of aid may be useful in cases where the capital improvement is regarded by society as a necessity but where the local government does not have the credit standing to sell additional bonds.

ANOTHER TOUGH COMPETITIVE TEST... AND DODGE PURSUITS WIN AGAIN!



California Highway Patrol orders 287 more

They don't fool—those California Highway Patrol officials. To sell them a fleet of cars that must cover some of the toughest terrain in the land, you've got to prove what those cars can *do*—and *take*.

In a recent test, the new '58 Dodge competed with four other makes for acceleration, top speed, braking, handling ease and stability. As a result of these demonstrations, Dodge was awarded an order for 287 more Pursuits to join a larger Dodge fleet already in service there. Here are some of the highlights of this test:

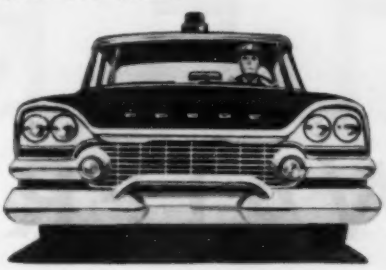
ACCELERATION—In a quarter-mile run from a standing start, Dodge topped the field by attaining a speed of 85.41 mph.

BRAKING—The Dodge average for three "panic" stops from 60 mph. was 125 feet. Other makes required 157, 169, 193 and 223 feet.

"FADE"—Dodge withstood eight fast stops from 60 mph. without developing "fade."

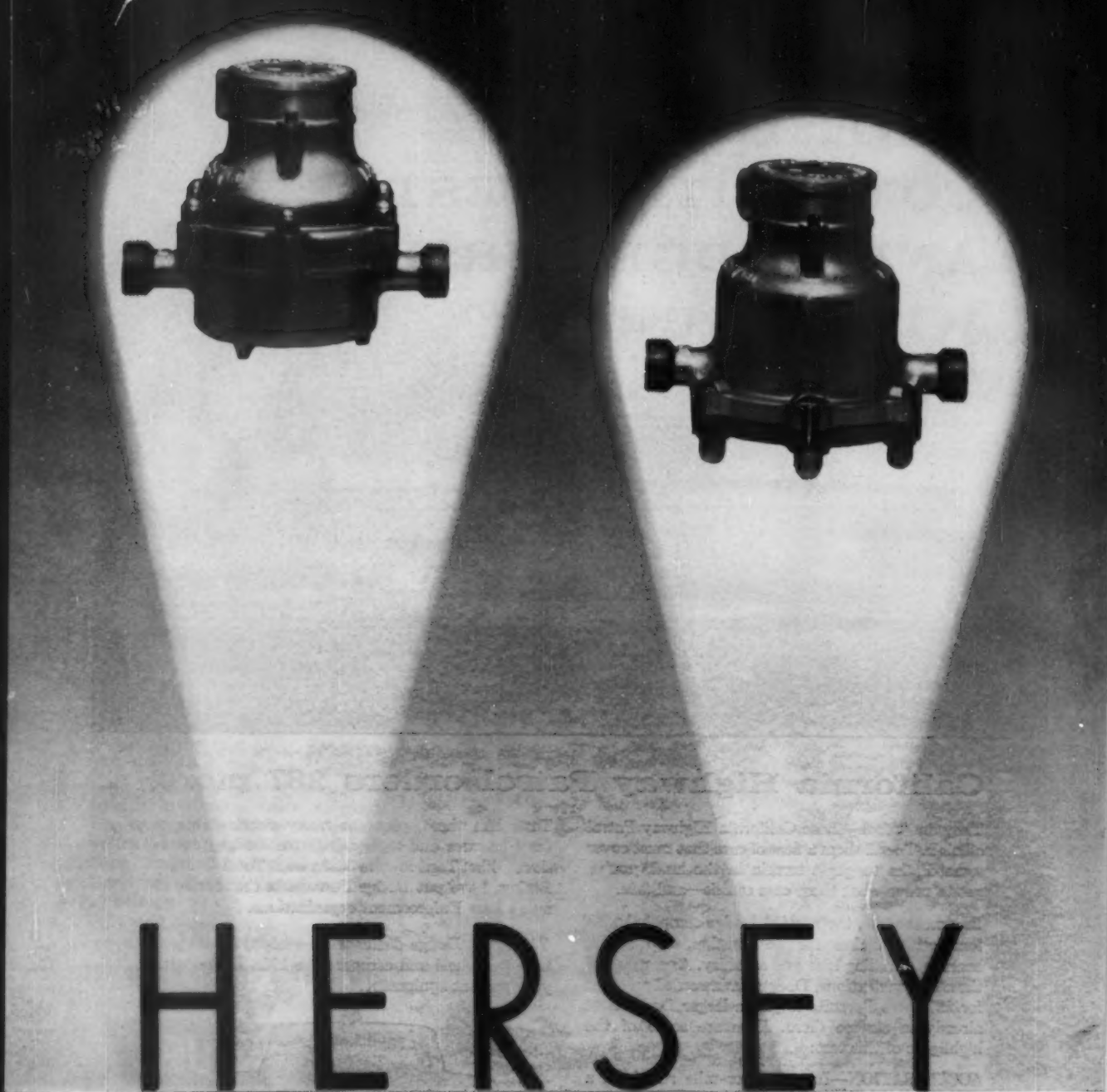
Tests like these, plus the many *standard* heavy duty features and highly desirable Dodge "exclusives" like Torsion-Aire Ride and Total-Contact Brakes, have put Dodge Pursuits in the service of many Law Enforcement organizations.

Your local Dodge dealer will be happy to let you take the wheel and compare the 1958 Dodge with your present equipment.



Built and Powered for Law Enforcement Work

SWEPT-WING 58 *Dodge* PURSUIT



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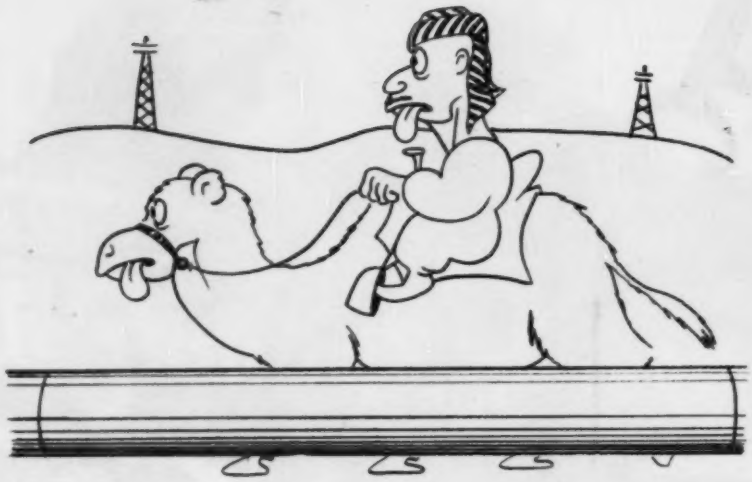
Desert Water Supply Problems

. . . or how to supply water in areas of Saudi-Arabia where, by U. S. standards, none exists



ANY water works man who feels that his problems are insurmountable should take a little time off to listen to the difficulties confronting the utilities engineers for the Arabian-American Oil Company in Saudi-Arabia.

Oil in that distant, exotic, and internationally sensitive land, is plentiful. Surface water, as cities know it in this country, is virtually nonexistent. The sources are only deep wells delivering a brackish water and, of course, the sea. This sea, incidentally, in this area, is half again as "salty" as it averages elsewhere. In any case, both the brackish well water and the super-salty sea must be used to provide water for the oil-producing operations, and in a manner that will open the eyes of the average U. S. water superintendent.

Five Water Service Lines

Each house or industrial building in these oil-industry communities must have not one, but five separate water service lines. One carries drinking water; the second and third, hot and cold raw water for washing purposes; the fourth and fifth, a softened water that enters, circulates and leaves the building. In hot weather, the temperature of the circulated water is lowered at central air conditioning plants to 50°F. so that it can be used to cool the building. In cool weather, it is heated and used to warm the house.

Cross-Connection Problems

With this variety of water to select from, householders have been known to set up unauthorized cross connections and use the distilled water for bathing, or washing clothes. To track this down in a hurry, the utility engineers will, on rare occasions, put a little vegetable dye in the drinking water and wait for some housewife to call up complaining that her husband is turning purple in the shower. The engineers could reassure those who tell them that grape juice is coming out of the tap, but they send plumbers to the homes with the purple husbands.

In fairness to the Aramco employees, it should be pointed out that most of these cross connections arise through confusion over the complicated plumbing system. Furthermore, the more general practice is to trace the unauthorized cross connection by testing the hardness of the water.

In most cases, the water used for drinking is the same as that used for boiler feed water. The treatment of the water required to make it suitable for use in boilers is intricate.

Zeolite Plus Distillation

A "good" well probably will have from 1,600 to 12,000 ppm of dissolved solids. To make it usable as boiler feed water, and thus also for drinking, this well water first must pass through a zeolite softener. If the well is close to the ocean, sea water can be used to regenerate the zeolite units partially. The balance of the regeneration requires salt brine. Sea water cannot regenerate the zeolite completely because it contains too much calcium and magnesium.

The zeolite treatment will reduce the hardness content to about 10 ppm. The pH of the water is then adjusted with sulphuric acid; the water next passes through a degasifier to remove carbon dioxide, and the pH is readjusted, this time with caustic. The water then enters a tube-and-shell evaporator and emerges with only 10 ppm of total dissolved solids—thoroughly accept-

Super special delivery. With an Arctic winter approaching, Yellowknife needed its Mack pumper in a hurry . . . and here's how they got it. In addition, the sub-polar climate demanded special equipment . . . and Mack's custom-built apparatus was able to incorporate the features needed to beat temperatures that fall as low as 65° below.

Mack pumper flies to the frozen North

Travel 1000 miles due north from Glacier National Park on the U. S.-Canada border, and you arrive at Yellowknife, a mining community in Canada's Northwest Territory, and a sub-polar region where temperatures drop to 65° below zero.

Accessible only by air during many months of the year, Yellowknife recently made feature reading in newspapers across the country when they took delivery of a "flying fire engine"—a Mack pumper that rolled out of a giant cargo plane. In addition to its basic Mack dependability, this pumper was further fortified with exhaust pipe and gasoline heaters to offset the extreme local freezing conditions.

Yellowknife's Mack illustrates perfectly the fact that whatever your requirements in fire apparatus, Mack custom-built equipment meets them best. Whether you operate in cold latitudes or hot; whether you want standard or automatic transmissions; whether you want cab-forward or conventional models—Mack has the ideal units for your needs. Contact your Mack representative for details. Mack Fire Apparatus, Plainfield, New Jersey. In Canada: Mack Trucks of Canada, Ltd.

MACK

first name for

FIRE APPARATUS

Complete Line of Pumpers—
500 to 1250 GPM
...Squad and Hose Wagons...Aerials 65'
to 100'...Combination Ladder Trucks

5790

able both for use in boilers and for drinking.

The sea water can be passed through the evaporator directly, even though its dissolved solids will be as high as 60,000 ppm. In the well water, the solids content, although much lower, consists chiefly of calcium and magnesium silicates. When these are evaporated out, they clog the evaporator quickly.

Investigators have puzzled over this phenomenon. An evaporation unit will work excellently on sea water with high content of salt, but will bog down on well water with a much lower solids content. Pretreatment through a zeolite unit will solve the problem by reducing the hardness content of the dissolved solids.

Makes Excellent Tea

Each community is supplied with drinking water at a rate of about 10 to 15 gallons per person per day. Many Arabs living in settlements outside the community, bring large water bags to be filled. The Arabs then present this water to their families and friends as gestures of hospitality. They find that it makes excellent tea.

Moreover, the code of the desert requires that anyone visiting a camp must be given water if he wishes it. And every Bedouin knows that if he follows an oil pipeline, eventually he will reach water. Caravan routes followed since Biblical times have been altered now that these tubes of steel stretch across the desert. Aramco, in recognition of this desert code of mutual assistance, maintains wells permanently, after drilling them to serve only temporary construction camps.

In these outposts, one of the problems is to operate equipment under the excessively hot desert sun. Under these conditions, the submersible type pump-and-motor combination works the best.

For anyone interested in costs, the raw water at the well averages about 20 cents to 35 cents per 1,000 gallons; the distilled water for boilers and drinking will cost about $15 per 1,000 gallons.

Aramco engineers also utilize the membrane demineralizer for removing dissolved solids from well water, and also the vapor-compressor. These methods produce an acceptable drinking water, with about 400-500 ppm dissolved solids, at a cost of roughly $3 per 1,000 gallons. The flash evaporator has been used to produce drinking water from sea water.

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780 TRUCKSTER®

Street cleaning and light street maintenance is another of many areas of municipal service where substantial savings are currently being made through the use of a Cushman 780 Truckster as a replacement for, or auxiliary to, a conventional truck.

Other municipal jobs which the 780 Truckster handles with maximum efficiency and economy include garbage collection; parking control and parking meter service; golf course maintenance; hauling of supplies; and as a service vehicle.

Ruggedly built and driven by the powerful Cushman Husky engine, the 780 Truckster handles an 800 pound payload with ease. It not only operates at a cost of less than a penny per mile, but requires a minimum of maintenance expense; and, in many instances, saves man-hours by converting a "walking" job into a "riding" job.

The 780 Truckster is available with fiber glass cab and side curtains as optional equipment, and in a variety of body styles to fit your specific needs. Electric starter also available.

Ask your dealer for FREE demonstration or write for complete details on how the 780 Truckster can serve your city.

SOLD AND SERVICED NATIONALLY
Replacement parts immediately available.

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A subsidiary of Outboard Marine Corporation
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Please send complete information on 780 Truckster
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ADDRESS_____
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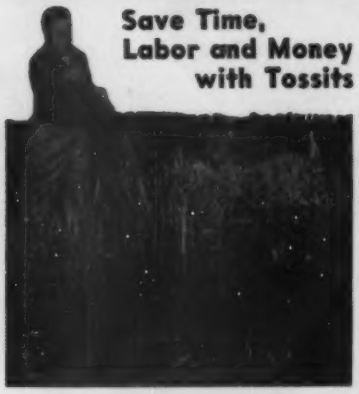

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Gives 100% Kill In All Breeding Places—SWAMPS • CANALS • CATCH BASINS • RAIN POOLS • DITCHES

You simply throw Tossits in infested water . . . capsule dissolves and the solution spreads rapidly in all directions forming a film of larvae-killing insecticides over the surface of the water.

YOU CANNOT OVERESTIMATE THE EFFECTIVENESS OF TIME-TESTED, CLEAN, SAFE AND EASY-TO-HANDLE TOSSITS . . . ESPECIALLY IN HARD-TO-REACH BREEDING AREAS!

- Tossits make it possible to larvacide areas inaccessible to power spraying equipment . . . and areas hard to reach with hand spraying equipment.
- Tossits permit wider distribution of Field Men with consequent savings of valuable time. One competent man can carry several hundred Tossits, make his own inspections and do the larvaciding work of five men with hand equipment.
- In a matter of minutes, one man with 50 Tossits can larvacide an acre of dense breeding ground . . . or 50 isolated rain pools . . . at an average cost of $1.50.

In Every Instance . . . TOSSITS ARE CHEAPER—MORE EFFECTIVE THAN HAND SPRAYING

Write Today for descriptive literature.

WYCO INTERNATIONAL

4811 Carnegie Ave., Cleveland 3, O.

Sole distributor for Wyco Inc., West Palm Beach, Fla.

"Outside Pressure" Proves a Boon in Gary

Plastic compound provides three basic advantages

NORMALLY, outside pressure is an annoyance around city hall. But in Gary, Ind., a particular type of outside pressure is producing a much better sewer system.

In this case, the outside pressure was hydrostatic, naturally applied, to help seal concrete sewer pipe joints. The Chase Street sewer project, currently being constructed, utilizes 4,700 feet of precast reinforced concrete pipe ranging from 4 to 11 feet in diameter. The ditches vary from 15 to 17 feet in depth, but the water table is only about 3 feet below the surface. Since the soil is sandy, the hydrostatic pressure at the bottom of the large sewer runs as high as 7 or 8 pounds per square inch.

Generally, hydrostatic pressure tends to loosen a tight joint seal and permits infiltration of water. However, the contractor on this project, Edward Witter of Witter-Gaddis, Inc., found a way to use the pressure to keep the sewer joint tight.

Cold Joint

The method utilizes a cold plastic sewer joint compound called Sewertite. Workmen apply this compound with a trowel to the tongue end of the pipe to a thickness of about ¾ of an inch. The pipe is lowered into the trench and shoved home snugly.

The joint is then grouted on the inside with a nonshrinking mortar. This consists of one part mortar-type portland cement and the required amount of Embeco to three parts of torpedo sand.

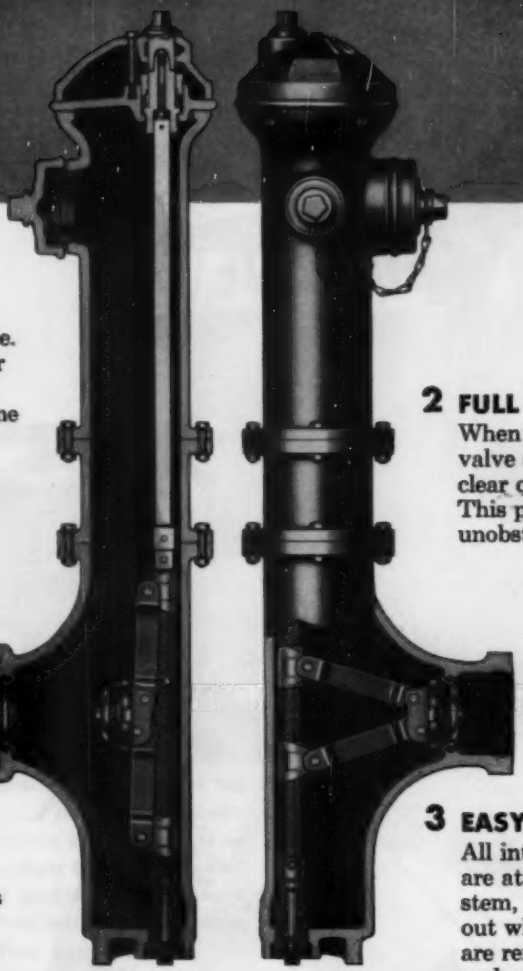
Several Advantages

The hydrostatic pressure forces the Sewertite against the inner grout. This Sewertite, made by the Philip Carey Mfg. Company, is thus forced into minute openings, effectively sealing the joints against water infiltration. The consulting engineer feels that this type of joint provides three main advantages. First, being plastic, it will not crack with the ground movement. Second, the pressure on this plastic compound actually increases its sealing power. Third, rapid restoration of roads and streets is possible because backfill can be made immediately after pipe has been joined with Sewertite.

As each section is sealed, a shovel and bulldozer work as a team, backfilling over the sewerline and compacting the fill to allow rapid resurfacing. This eliminates the usual large piles of dirt which must remain at the sides of streets where sewer pipes have been joined by conventional cement sealers.

(Left) A workman applies the plastic joint compound with a trowel to the tongue end of concrete pipe to a thickness of about ¾ of an inch. The pipe is then lowered into the trench and snugly joined to the groove end of another section. (Right) a power shovel and bulldozer acting as a team backfill the trench immediately.

Here is why farsighted city officials install IOWA fire hydrants



1 FAST WATER
Opens fast, with the pressure. Closes slowly, without water hammer. Sticks, stones or foreign matter cannot become lodged between the valve and valve seat.

2 FULL FLOW
When hydrant is fully opened, valve and stem are entirely clear of the waterway. This permits free and unobstructed flow of water.

OPEN

CLOSED

IOWA HYDRANTS AND VALVES
meet all A.W.W.A. specifications

3 EASY MAINTENANCE
All internal working parts are attached to the valve stem, which is easily lifted out when dome and head are removed. Common wrench and screwdriver only tools required. No special tools are needed.

Let us send you details on Iowa's complete line of valves and hydrants

IOWA
VALVE COMPANY
A Subsidiary of James B. Clow & Sons, Inc.
Oskaloosa, Iowa

from streets to expressways
...lowest cost per striping mile

No other line marker in its class has the versatility and outstanding features of the M-B Model 16 Marker. Engineered for scores of city and county marking jobs, the Model 16 increases the mileage of lines laid per day with reduced operating and maintenance cost. ▪ You get a big production marker . . . lays double lines, 2" to 6" wide, in one or two colors . . . solid or intermittent . . . may be equipped with a third spray gun. You get a big capacity machine with paint capacities of 18, 30 or 36 gallons . . . with reflective bead dispensing equipment available. You

get big machine features at no extra cost . . . economical one-man operation . . . self-contained riding platform — no trailer . . . true automotive-type steering . . . two speeds forward (up to 6 mph) and one reverse . . . automotive-type foot and parking brakes. ▪ Yes, you get all these advantages plus the assurance that your Model 16 Marker will give you peak performance for years to come . . . backed by M-B's almost 40 years of line marker experience. ▪ There are six other outstanding striping machines in the full M-B line . . . from hand-propelled, single line units to heavy duty, semi-custom truck-mounted rigs . . . a model to fit any job, any budget. ▪ Now is the time to look over your present striping equipment and prepare for future requirements. A call to the M-B distributor in your area will bring complete information on the unit best tailored to your individual needs. Ask him for full details now!

M-B Corporation, New Holstein, Wis.

M-B equipment for cleaner, safer living
Sanitary Refuse and Garbage Collection Bodies
Tractor-Mounted and Pull-Type Sweepers
Versatile Truck Loader with Powerful Jaw Action

M-B CORPORATION
NEW HOLSTEIN, WIS.
MANUFACTURERS OF QUALITY MUNICIPAL AND CONSTRUCTION EQUIPMENT since 1907

Decentralized Recreation Department Tried in Los Angeles County

FACED WITH an approaching population of 6 million persons in a 4,083-square mile area, Los Angeles County has decentralized the administration of its public recreation program in order to provide better localized recreation services. According to County Parks and Recreation Director N. S. Johnson, his department has established division recreation offices in Arcadia, Bell Gardens, Lawndale, Newhall, West Hollywood, and Rivera, — all suburban localities in Los Angeles County.

A New Twist

The following paragraphs by Mr. Johnson describe the reorganized operation:

"During the past year the problem of administering recreation for 321 Los Angeles County parks and school playgrounds from a central downtown Los Angeles office had become "acute".

"We found that with 'bigness' you lose the close personal relationship with the people in the community. Patrons of the recreation program acquire the feeling that the central recreation office is no longer personally interested in their community recreation problems and that the main office is too far away. We learned that asking our patrons to contact our Los Angeles central office for their local program details was causing them too much trouble, and that they resented it.

Reorganization

"The principle of decentralization and its practice is not new, but perhaps the 'twists' we have given it are different. Under our decentralized plan, each division recreation director is charged with complete responsibility for providing and administering a comprehensive community recreation program within his geographical area.

"Our senior recreation directors, working out of each of the six division offices, now assume 'face-to-face' supervision responsibilities for playground personnel and local recreation activity programs. None of the senior recreation directors has more than a maximum of 22 park and school areas under his jurisdiction. He has no other major responsibilities.

"Initially, this delegation of responsibility and authority to carry it out was a difficult problem to our staff. The change from a strong centralized plan of operation to a decentralized program required education and acceptance of all people concerned.

Self-Contaned Units

"In keeping with the idea of a self-contained unit, the division recreation directors are given complete administrative responsibility for the recreation program within their geographical service area. They are expected to act in the same manner as an administrator of recreation in a local community. They represent the department in recreation matters with school and city officials; coordinating councils, PTA councils; and homeowner associations, etc."

6,000 Auto Stalls For Milwaukee

A goal of 6,000 new off-street parking spaces in 10 to 12 downtown parking structures by 1960 is city policy set by the Common Council of Milwaukee, Wis.

Cost is estimated at $20 million, to be financed by revenues from leases on the parking structures, benefit assessments and parking meter receipts.

Write today for closest dealer and catalog No. 657 which gives the facts and exclusive features on all six new models of M&M Brush Chippers.

See . . . Compare . . . Buy an M&M Beaver, America's No. 1 Brush Chipper. *Dealer Inquiries Invited.*

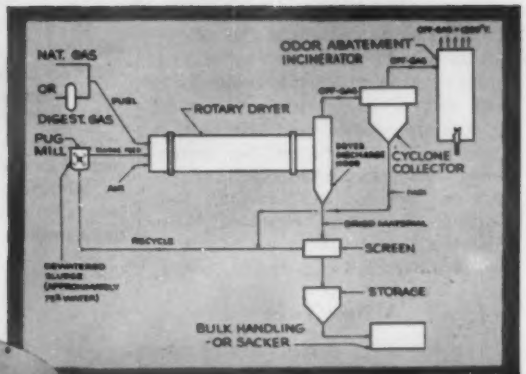
103

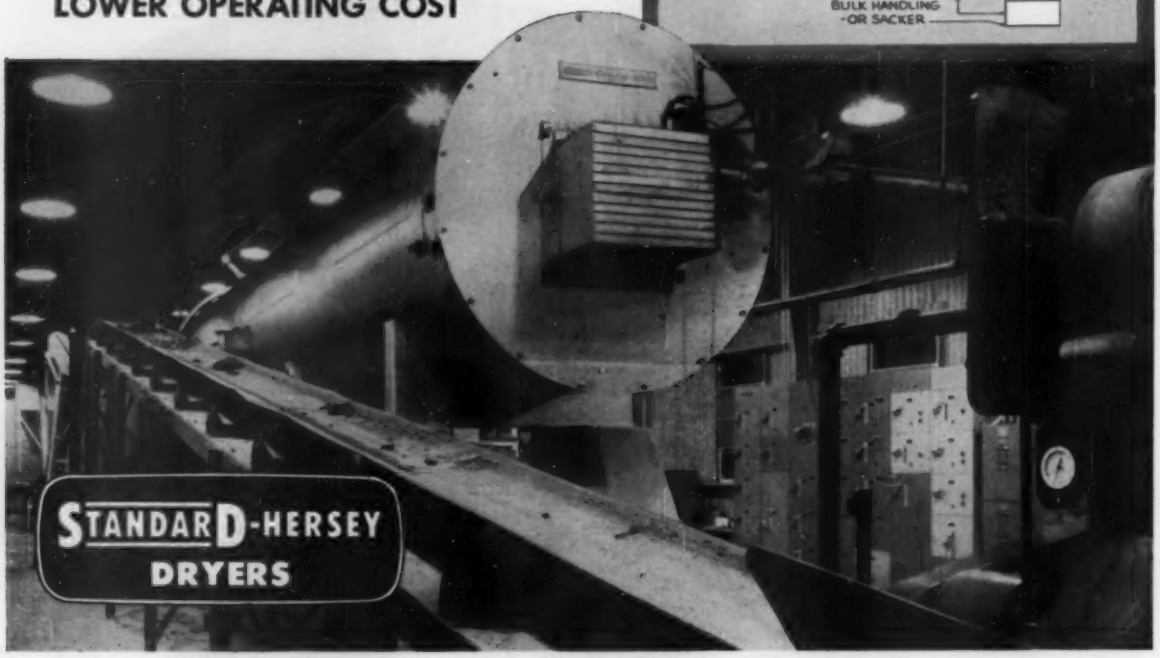
MITTS & MERRILL • 1003 So. Water Street • SAGINAW, MICHIGAN

BUILDERS OF WORK-SAVING, MONEY-SAVING AND MATERIAL RECLAIMING MACHINERY SINCE 1854

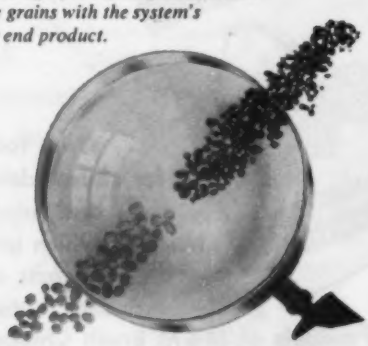
STANDARD Steel Produces A Lower Cost Sludge Drying System

SAVES UP TO 50% ON INVESTMENT– LOWER OPERATING COST





Actual photograph showing comparison of barley grains with the system's granular end product.



Rotary Drying Produces a Granular, More Marketable Product.

Standard Steel's new, packaged sludge drying system provides large and small communities with a low-cost, all weather sludge drying plant. This rotary drying system costs half as much to install... and even less to run—than other systems. It is a push button, fully automatic plant, usually requiring only one operator.

The end product is granular... thus avoiding a pelletizing step. The material is ready for the market within minutes after entering the system.

Investigate these Standard Steel plants that cost less, provide profits and improve community relations by removing obnoxious and space-consuming drying beds and lagoons.

STANDARD STEEL CORPORATION

General Offices & Plant, 5085 Boyle Avenue, Los Angeles 58, California

Midwest Offices & Plant **LEADER IRON WORKS** *Decatur 85, Illinois*

(Division of Standard Steel Corporation)

ROTARY DRYERS · KILNS · COOLERS · ASPHALT PLANTS

1957's All-America Cities

VIGOROUS citizen action leading the fight for a better urban America won honors for 11 cities and towns and one county across the country last month. Cited as winners in the 1957 All-America Cities contest sponsored by the National Municipal League and *Look* Magazine were Albuquerque, N. M.; Clarksburg, W. Va.; Galesburg, Ill.; Ketchikan, Alaska; Miami-Dade County, Fla.; Middletown, Ohio; Neosho, Mo.; Omaha, Nebr.; Philadelphia, Pa.; Vancouver, Wash.; and Yankton, S. D.

Among the outstanding accomplishments recognized by the awards was the creation of a metropolitan government for fast-growing Miami, Fla., and its surrounding Dade County. Called one of the boldest advances in municipal administration history, the new government has unified authority over public services, traffic, public safety, and taxes throughout the entire Miami metropolitan area. Despite opposition from various public employee associations, municipal and county officials and other groups, a charter for such a new government was approved by Dade County voters in 1957.

If any pattern emerges from other award winners it is this: that deep-seated corruption can be permanently abolished effectively by changing local forms of government. For in case after case, charter elections were a prerequisite move to the permanent ejection of lax and corrupt governments.

In addition to the 11 award winners, the following cities were cited for honorable mention:

Bryan, Ohio; Charlotte, N. C.; Corning, N. Y.; Eureka, Ill.; Gardiner, Maine; Newton, N. J.; Oak Park, Ill.; Oak Park, Mich.; Presque Isle, Maine; San Jose, Calif.; and White Bear Lake, Minn.

The National Municipal League has announced that the 1958 contest will be held earlier than usual. Entry forms will be available after the middle of March and the contest will close in August rather than the September 15 date in 1957.

Albuquerque, N. M.

The atomic age brought a population to quadruple Albuquerque, but little else. It certainly didn't bring better government for at the same time that population figures soared and potential revenue sources increased, streets fell into disrepair, the water distribution system became inadequate, the police force fell below a desirable level, etc. When the water supply system finally failed in part of the city in 1953 local citizens reared up and the reaction began. A Citizens' Committee good government slate was elected to the city council in 1954 by an overwhelming margin. Revenues were upped through the adoption of a city sales tax, and with the added funds the city has proceeded to carry out a comprehensive street maintenance program, install needed street lighting, beef up the police department, construct new water facilities, improve garbage collection, and revitalize the city government with an improved administrative organization for public works.

Clarksburg, W. Va.

With a past fraught with racketeering, corruption, economic upheaval, cynicism and apathy, Clarksburg at last has its eyes on the future. But it took a fight for decent honest government by 2,500 aroused citizens in this city of 32,000 before all local eyes were turned to the horizon. The gauntlet was thrown down when in 1955 Clarksburg's residents were shocked to learn that a majority of the city council had come to terms with racketeers on a secret arrangement aimed at "opening up

Awards honor citizen action in improving eleven municipalities

•

ALBUQUERQUE
New Mexico

CLARKSBURG
West Virginia

GALESBURG
Illinois

KETCHIKAN
Alaska

MIAMI-DADE COUNTY
Florida

MIDDLETOWN
Ohio

NEOSHO
Missouri

OMAHA
Nebraska

PHILADELPHIA
Pennsylvania

VANCOUVER
Washington

YANKTON
South Dakota

a new concept in PARK BENCHES

by Game-time

The first truly modern bench for permanent installations. It obsoletes all others!

Plan Now To Replace Damaged Benches and Playground Equipment and To Fill Those Vacant Spots With Quality-Built Game-time Products.

A heavy-duty bench with frame and supports formed from 2⅜" O.D. pipe and all-welded construction. Seat and back of 2" x 4" sanded wood with rounded corners, securely bolted to frame. Wood finished in green weatherproofing paint, metal in baked green enamel. In 4', 6' and 8' lengths. For installation in concrete footers.

Unmatched Convenience and Long Life

Game-time **TABLES & STOVES**

The perfect pair. A Walk-in picnic table of modern design—no climbing over braces, straddling, torn hose or splinters. Heavy tubular steel frame, electric welded. Smooth 72" x 30" top, 72" x 8" x 2" seats. Will seat 8. Quickly dismantled.

Waist-Hi Stoves, portable with base or standard for permanent installation. Swivel top, 21½" x 25½" cooking surface, 10⅜" x 21⅜" fire box, handy ash pit baking oven. Grates swivel 90 degrees. Concealed bolt prevents unauthorized removal.

Swings • Seesaws • Slides • Climbers • Merry-go-Rounds • Bicycle Racks • Flag Poles • Baseball Backstops • Basketball Backboards • Goal Posts • Tennis Nets & Posts • Volley Ball Posts • Write for new catalog today.

MARK OF QUALITY

Game-time, Inc.

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Wholly owned subsidiary of Thiokol Chemical Co.

KEEP BUSINESS IN TOWN . . .

with Low-Cost
CONTROLLED PARKING

PARCOA Systems Provide Unmatched Flexibility for Automatic Off-Street Parking

In city after city, PARCOA controlled parking systems are proving the answer for easing traffic congestion and building business for local merchants.

Low in first cost and operating without attendants 24 hours a day, these dependable systems offer widest flexibility of controls with choice of exclusive card-keys, coins, tokens or any combination. Savings in labor and service quickly amortise low cost. Ask for descriptive literature.

TIME-DATED TICKET DISPENSER

Now Available... Automatically issues time-dated tickets where "per-hour" rates apply and for merchant-participation parking. No attendants required at entrance—only one cashier at exit.

PARCOA *Division of* **JOHNSON FARE BOX COMPANY**

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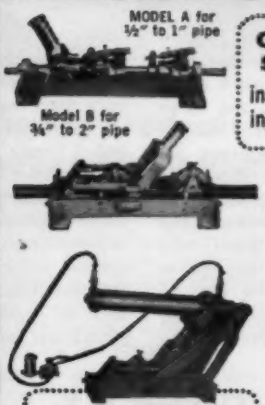
Phone LOngbeach 1-0217

SALES AND SERVICE OFFICES IN MAJOR CITIES LISTED UNDER BOWSER, INC.

Only the
Trojan Pipe Puller & Pusher
gives you continuous action
No Resetting of Grip!



CUTS COSTS! SAVES TIME- in installing or renewing pipe under pavement

The Trojan combines pushing and pulling operations in one machine—eliminates all time-killing resetting of grip—keeps pipe continuously moving. Does the job at lower cost—in far less time.

Model A weighs 65 lbs.—requires only 5' trench. One man can easily install the average service. 15 tons of pushing pressure possible.

Model B (either hand or air powered) needs only 5½' trench—has 3 speeds for different soils—is reversible in 30 seconds. Push pipe comes in 30" lengths, assures straight travel.

NEW AIR POWERED Model B
Does all the work for you. Handles ¾" to 2" pipe.

Write today for full details!

The TROJAN Manufacturing Co.
1113 Race Drive • Troy, Ohio

the town" in return for revenues from token vice raids. A newly appointed city manager helped expose the proposed deal, helped lead a fight for good government and was shortly after fired. A powerful citizens' group promptly hired him as their executive director, bought a weekly newspaper in order to circumvent biased news handling by the local monopoly-owned and pro status quo dailies. A call for a new form of government in a public mass meeting won the quick support of more than 2,500 citizens who formed the soon-to-be-powerful Non Partisan Association. A little more than a year later after more than 7,000 persons had petitioned for a new form of government, a new charter was voted in the biggest election in the city's history. A new council has begun the slow, hard job of remaking Clarksburg.

Galesburg, Ill.

Galesburg entered the boom years of the 1950's with the dubious distinction of not having passed a general obligation bond issue for a major improvement since 1929. Thus in 1955 its schools were crowded and substandard, a water shortage made rationing a future certainty, the "standing room only" sign was figuratively on the city's two overtaxed hospitals, and its in-city airport was too small for commercial planes. When residents became convinced during the early part of 1955 that obstructionist tactics in the city council were hamstringing improvement efforts, a two-year citizen revolt began. A succession of special citizen groups were organized to fight for and win (1) a $4.8 million bond issue for new schools, (2) a $5.3 million water facilities bond issue, (3) $838,000 in pledges for enlarging the hospitals, (4) $660,000 in bonds for off-street parking area construction, and (5) relocation and enlargement of the airport outside of town. In addition the city governmental structure was overhauled through the adoption of a council-manager administration which quickly authorized the preparation of an over-all city plan.

Ketchikan, Alaska

Assuring a promising economic future for this isolated Alaskan town of 7,500 was the aim of citizen action in Ketchikan. Consequently 275 key citizens banded together to broaden its traditional single industry base—fishing. Through petitions to Congress to make a surrounding national forest available to commercial timber users, and through a successful campaign to attract a pulp mill, Ketchikan now has $56 million in new industrial facilities, 2,500 more people attracted to the town by the new industry and a $12.8 million public works program under way. The fishing industry was aided through the development of a new 600-boat mooring harbor. Paralleling the economic improvement, other groups sought civic improvements that included the abolition of a riverfront red light district, the strengthening of law enforcement, and inciting efforts in the fields of parks and recreation, a public library and city planning.

Miami-Dade County, Fla.

By winning public approval for the first modern metropolitan government in the United States, citizen groups in Miami-Dade County have captured the rapt attention of governmental specialists throughout the nation. The four-year effort to establish an area government began with a $50,000 authorization from the Miami City Commission for a study of the metropolitan problem. With a sound technical report from the Public Administration Service as a chart for their course, 1,200 citizens coordinated their efforts to win public approval of the recommendations. A 21-member Metropolitan Miami Municipal Board spearheaded the work; the 300-member Dade County Research Foundation served as a clearing house for facts, and technical information in addition to providing speeches and articles on the proposed government change; the 3,600-member Chamber of Commerce used its advertising and mailing facilities to spread the word while the 650-member Junior Chamber of Commerce organized parades, motorcades and other demonstrations to focus public attention on the campaign; and the Miami *Herald* and the Miami *Daily News* gave unflagging support for the entire effort. The results: the Florida Constitution was amended to give home rule powers to the Miami area; public approval for a new charter for Miami metropolitan government; and appointment of one of the nation's outstanding public administrators as first county manager.

Middletown, Ohio

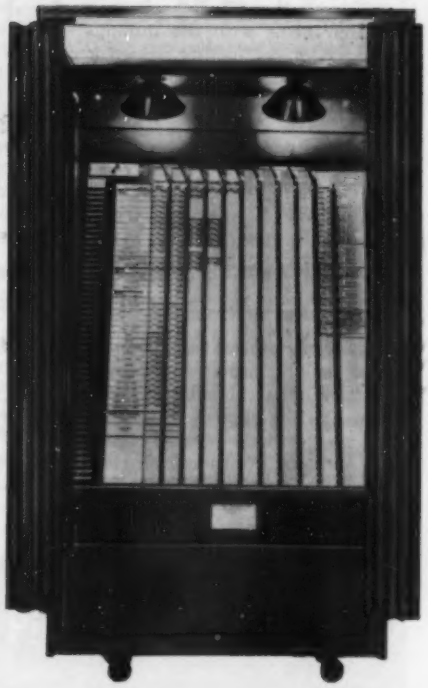
This rapidly growing town of 45,000 persons didn't have to begin its improvement program from a base rock of vice and corrupt government. Instead it simply wanted to make itself a better place and did so through a popularly conceived 14-point improvement program. When approved by voters in 1951, the program was put into effect through the ensuing years with funds appropriated for (1) an extensive new park and playground system, (2) added fire and police protection facilities, (3) new arterial streets, (4) a $9 million sewer and sewage treatment plant construction project, and (5) a $6.5 million school expansion program. Through popular subscription $2.5 million was raised to expand the local hospital. Schools were consolidated and Negro teachers and pupils were integrated into formerly white schools.

Neosho, Mo.

Neosho's broad citizen-sponsored improvement program was ignited two years ago by a simple town-wide beautification contest that resulted in the blossoming 3,000 flower boxes adorning homes, businesses,

$91,662.39

saved in Kansas City, Mo. in a single election!



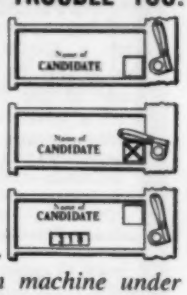
Comparison of Election Expenses
Primary Election, 1952
Primary Election, 1956

EXPENSES	*August 1952 Using Paper Ballots*	*August 1956 Using Shoup Voting Machines*
Extra Employees	$ 72,270.76	$ 38,988.00
Overtime	39,453.14	7,495.62
Deputy Election Commissioners	2,719.50	430.00
Judges and clerks	39,472.00	18,596.00
Postage	1,662.78	1,003.36
Auto allowance	2,297.62	635.16
Advertising	2,315.80	1,435.84
Extra telephones	610.00	906.24
Rental of Polling Places	5,067.00	5,023.70
Rental of Office Equipment	1,177.20	349.50
Delivery of Election Supplies	6,320.70	13,621.84
Ballots, printing, etc.	23,428.80	16,647.65
	$196,795.30	$105,132.91
Savings over 1952 (primary election only)		$ 91,662.39

This tabulation from Kansas City Star, December 17, 1956.
Reprints of complete article on request.

SHOUP EXCLUSIVE FEATURES SAVE VOTING TIME... AND TROUBLE TOO!

Vertical Ballot Moving "X" Mark...
"X" appears alongside of candidate's name after voter has made his choice.



Instantaneous Results Under Candidate's Name..
Total count appears on machine under candidate's name when machine is unlocked at close of polls.

NO DECODING NECESSARY!

RESULTS QUICKLY AND PERMANENTLY DOCUMENTED!

HOURS OF TABULATING TIME SAVED!

The Shoup Voting Machine Corporation
41 East 42 St. • New York 17, N.Y.

23 States Already Use Shoup . . .
The Voting Machine That Looks Like a Ballot!

public buildings and even local trash receptacles. With this success as a spur the 8,000 citizens of the town went on to employ professional planners to prepare an over-all city plan, backed a 50% expansion of the city area to permit an orderly extension of utilities, voted a $360,000 expansion of the local high school and helped secure a new industry employing more than 725 workers for their community.

Omaha, Nebr.

With their eyes opened by an effective educational campaign conducted via TV, radio, newspapers and a specially organized speakers bureau, voters in Omaha adopted a new home rule charter that permitted the city to put an end to decades of confused and leaderless government. The campaign for better government in this fast-growing city of 291,000 was led by the dual Citizens Committee for Ratification of the New Home Rule Charter and the Citizens Information Committee on the Home Rule Charter. Support also came from a highly active 200-member League of Women's Voters, the Omaha Chamber of Commerce and local daily and weekly newspapers. Members of the committees sent out thousands of postcards, stickers, and buttons. The speakers bureau made 345 speeches in a seven-week period. The result: voters adopted the new charter on November 8, 1956 and since then a new city government has taken office, new department heads have been appointed, a city plan is under way and a 275-person citizens committee has recently set forth a recommended 10-year public works program calling for $100 million in permanent improvements.

Philadelphia, Pa.

In 1951 Philadelphia was mired in a morass of spreading slums and downtown decay and paralyzed by a city administration that had a nationwide unsavory reputation. Since then the city has undergone a renaissance that while smaller in scope than the 14th Century variety, is no less brilliant. Corruption was eliminated in 1952 when a citizen-backed reform government took office under the dynamic leadership of then Mayor Joseph S. Clark, Jr. Fighting citizen action had done the job, but the real story of Philadelphia's rebirth lies in the continuing vitality of its citizen groups which have kept their sleeves rolled up ever since. With powerful assistance from such groups as the Greater Philadelphia Movement, the Pennsylvania Economy League, the Citizens Council on City Planning, and many others, the city has put into action a nationally noted urban renewal program, a regeneration of both the residential and business areas and of its historically famous downtown, a highly imaginative recreation program, and many others, financed by $220,420,000 of bonds. Philadelphians have demonstrated that public spirited citizens can take the initiative in launching and guiding to success a broad reform and improvement program.

Vancouver, Wash.

When aroused citizens of Vancouver decided they wanted to rid their city of an inadequate government and erase a long tolerated red light district, they found that the job required more than simply voting in the next election. To do the job they discovered they had to change their whole form of government, which they promptly did when after a careful campaign they voted for a new charter providing for a reform government headed by a professional city manager. Beyond this initial success they have followed through with an overwhelming approval of a six-year city-wide improvement program aimed at providing new storm sewers, street widenings, additional fire equipment and stations. An active city planning department is helping to spotlight the future course of city actions. An impressive urban renewal effort (the first in the State of Washington) promises to erase all slums, thanks to the people of Vancouver.

Yankton, S. D.

Despite a moderate growth after the war, Yankton's young people were leaving town when they reached working age because there were too few jobs for them. To make this town of 9,500 more attractive both to new industries and to their offspring, citizen groups banded together on a plan of action. An inventory of their accomplishments includes a new, more active municipal government (council-manager), two new elementary schools, a new high school and additions to existing educational buildings—all costing $1,500,000; $375,000 in water bonds approved; a $150,000 municipal swimming pool constructed; substandard housing cleared from a riverfront area; formation of a nonprofit industrial development corporation and an initial success in January 1957 in attracting new payrolls to the city.

All-America Cities' Awards Started As An Off-the-Record Event

In 1949 when the National Municipal League held its National Conference on Government in St. Paul, Minn., League officials were approached by a local newspaper reporter to name 11 winning cities to an All-America team. Thus, what began as an off-the-cuff award, has become an annual national contest highlighting the success of U. S. communities in solving civic or governmental problems through citizen action. Yearly about 75 to 100 communities compete in the event. The 1957 award made Philadelphia a three-time All-America City. Named to the honor roll in 1949, Philadelphia won its second All-America City award in 1951 for its new city charter. It made the 1957 winning team because of its fine renewal program.

FIRST...

Get the facts about refuse collection from...

DAYBROOK

Power Packer load test performance proves operating advantages of continuous

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The City Councilman—A Man with Many Duties

By Arthur W. Bromage
Department of Political Science
University of Michigan
Ann Arbor, Mich.

THE city councilman is a many-sided man. He has to be, for, as Albert Einstein was once quoted as saying, the reason the atom has been split, but that politics has not been solved, is that politics is a much more difficult science. Here are some of the duties that the councilman, who must wrestle with this difficult science, has to face:

The Councilman must be a financier. He finds himself in the uncertain ground between needs and costs. He must prepare the budget by determining the needs of the municipality he has been elected to uphold, and the taxes his fellow citizens will pay. This problem is as old as government, but takes added significance today when all levels are being pressured to halt the rise of governmental costs. Nevertheless he cannot jeopardize the lives and welfare of the people by thinning the "blue line" of policemen and firemen, by using one public health nurse where two are needed, by neglecting sanitation or by jettisoning organized recreation in favor of disorganized play. City governments are bargains compared with the price of rampant crime, death by fire, spread of disease and juvenile delinquency.

The Councilman must be a lawmaker. Whether it be the regulation of property by zoning or of the individual by ordinance, the councilman must make the law. He must draw the line between restraint and liberty. He hears the complaints of those who seek new regulations and the protests of those who choose to be unregulated. Even the control of dogs can consume endless councilmanic time in listening to the dog-lovers and the dog-haters. In our society, the public is not afraid of councilmen.

The Councilman is also an employer. Everyone who works for the city works also for him—the policeman on the beat, the ladderman at the fire, the sanitationman on the refuse truck. The Councilman must see that all are adequately paid, provided with decent working conditions, and properly supervised—at a reasonable price level.

The Councilman is a buyer. He must award contracts, approve major purchases of equipment and materials, think in terms of the lowest *responsible* bidder. Others, such as consulting engineers, may recommend, but the public holds the councilman responsible if something goes awry.

The Councilman must understand public relations. This can be a negative operation if he waits for fires to arise over public issues and employs his talents in "fire-fighting." The positive councilman tries to foresee problems before they reach the critical stage, and to set a policy of leadership. He has to devote much of his time in talking with fellow citizens since one can neither lead nor follow unless he knows something of the trends in citizen reaction.

The Councilman is also a critic. Since administrators have not yet reached perfection, the elected representatives must sometimes caution and advise them, giving direction to their efforts, and assuring that they work as a team. The councilman is

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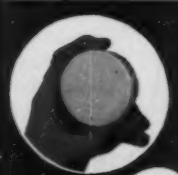

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an intermediary between the public and administrator, making certain that the administrator is actually in line with both the public needs and purse.

To be all these, the councilman must be willing to lead, yet defer to his fellow citizens; to analyze facts and forces; to exercise common sense in his judgments; to temper expert advice with several grains of salt; be willing to compromise, yet hold firmly to principle; to have stamina enough to campaign for re-election. Meanwhile, he must earn a living and maintain his family.

Osborne, Kans., Enlarges Electric Plant

THE municipal electric plant at Osborne, Kans., is scheduled to get a 1,600-hp dual-fuel engine. The four-cycle unit will have eight cylinders of 13-inch bore and will operate at 450 rpm.

The new engine will be a Nordberg Duafuel Supairthermal. It will provide power for a 1,135-kw Elliott generator. Present installed net capacity of the plant is 1,890 kw.

The new engine is the fifth diesel-generator unit to be manufactured at Nordberg's Busch-Sulzer Division plant for the City of Osborne during the past 36 years. The first engine, purchased in 1921, and the second unit were replaced as the municipality's electrical load steadily increased. The two largest units produce a major share of the present requirements.

The new unit, when installed, will make the plant a 4-engine project, consisting of 500-kw, 690-kw, 700-kw and 1,135-kw generators. Two of the engines will be dual-fuel while the two older engines are straight diesel. The two older engines will serve mostly for standby and peaking service. A new switchboard was installed in the plant two years ago with a panel installed to accommodate the new unit. Eugene Callaway is Superintendent of Utilities.

Cities Launch Near-Record Bond Volume in '57

THE YEAR 1957 proved to be a near-record year in municipal bond financing. The volume of state and municipal borrowings for the year amounted to $6,920,000,000, a total that came near topping the all-time high record set in 1954 when state and municipal borrowings surged to the impressive sum of $6,968,641,000.

State and municipal long-term borrowings from the capital market have risen above the $5,000,000,000 mark only since 1952.

The 1957 total was boosted at the last minute by the $250,000,000 Chelan County, Wash., Public Utility District bond offering the day before Christmas. The Chelan County issue also set a few records of its own. It was the largest of the year and was the first one over $100,000,000 in 1957. Moreover, it was the largest bond flotation since the Illinois Toll Highway Commission revenue bond issue in October 1955. Other large tax-exempt bond flotations that helped to swell the 1957 volume included school and veteran bond financing by the states.

The past year also stood out as one of the most difficult periods in three decades for municipal dealers and for the state and local government issuers of bonds. The Federal Reserve's tight money policy and the demands for capital funds from the federal, state and local governments and business all helped to create troublesome times for the municipal bond market.

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N. J. Municipal Engineers Analyze Employment Needs

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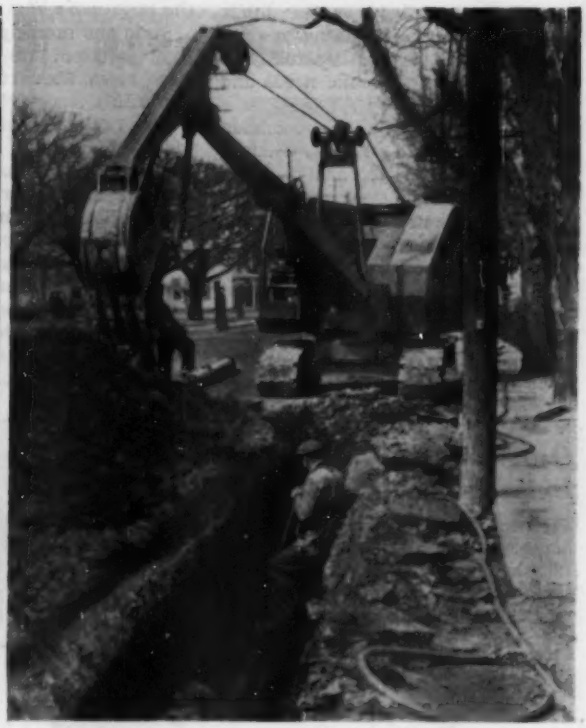

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N. J. Municipal Engineers Analyze Employment Needs

City engineers draft a 7-point recommendation designed to protect the best interests of their municipalities and upgrade municipal engineering standards

THE New Jersey Society of Municipal Engineers, concerned over continuing inroads into their ranks by industry, and difficulty in getting competent young engineers to supplement their staffs and maintain high standards of engineering excellence, drafted a 7-point program to be recommended to the municipalities to protect their engineering interests.

This program, based on a statewide study of municipal engineering requirements, goes as follows:

1. An urban group with a population of 10,000 or more should, for its own protection, maintain a full-time trained engineer experienced in the various facets of municipal services that are required by the municipality. Many municipalities with populations of less than 10,000 also will find their best interests served by the employment of a professional engineer on a full-time basis; however, those of 10,000 or more should consider a full-time engineer mandatory.

2. To insure attracting and keeping the type of engineer that the work merits, the municipality should be ready to pay starting salaries ranging from $9,500 to $15,000, depending on the size of the municipality and the complexity of the responsibilities involved. This salary should be increased, commensurate with the length of service and the extent of duties.

3. Those municipalities with less than 10,000 persons which do not feel that they should hire a full-time engineer, may retain one on a fee basis. However, the minimum retainer should be between $1,000 and $2,000 per year to compensate his attending meetings of the governing body and planning board, and to provide overall engineering counsel, including examination and approval of subdivision plans. In addition, the municipality should be ready to pay fees ranging from 6% to 10% to cover special construction projects.

4. Since engineers cannot deal with long-range plans conscientiously and effectively under conditions that threaten short-time employment and dismissal for political reasons, these engineers should be protected by tenure, similar to that provided municipal clerks. If this is not practical, laws should be enacted permitting municipalities to contract with a professional engineer for a period of not less than five years.

5. Engineers should be entitled to the same privileges that other municipal employees enjoy.

6. Municipalities should join the Public Employees' Pension System operated by the State of New Jersey.

7. In compliance with the law, a municipality always should obtain engineering services performed by a professional engineer with a license granted by the state in which he practices.

In arriving at this program, the New Jersey Society of Municipal Engineers canvassed 175 municipal en-

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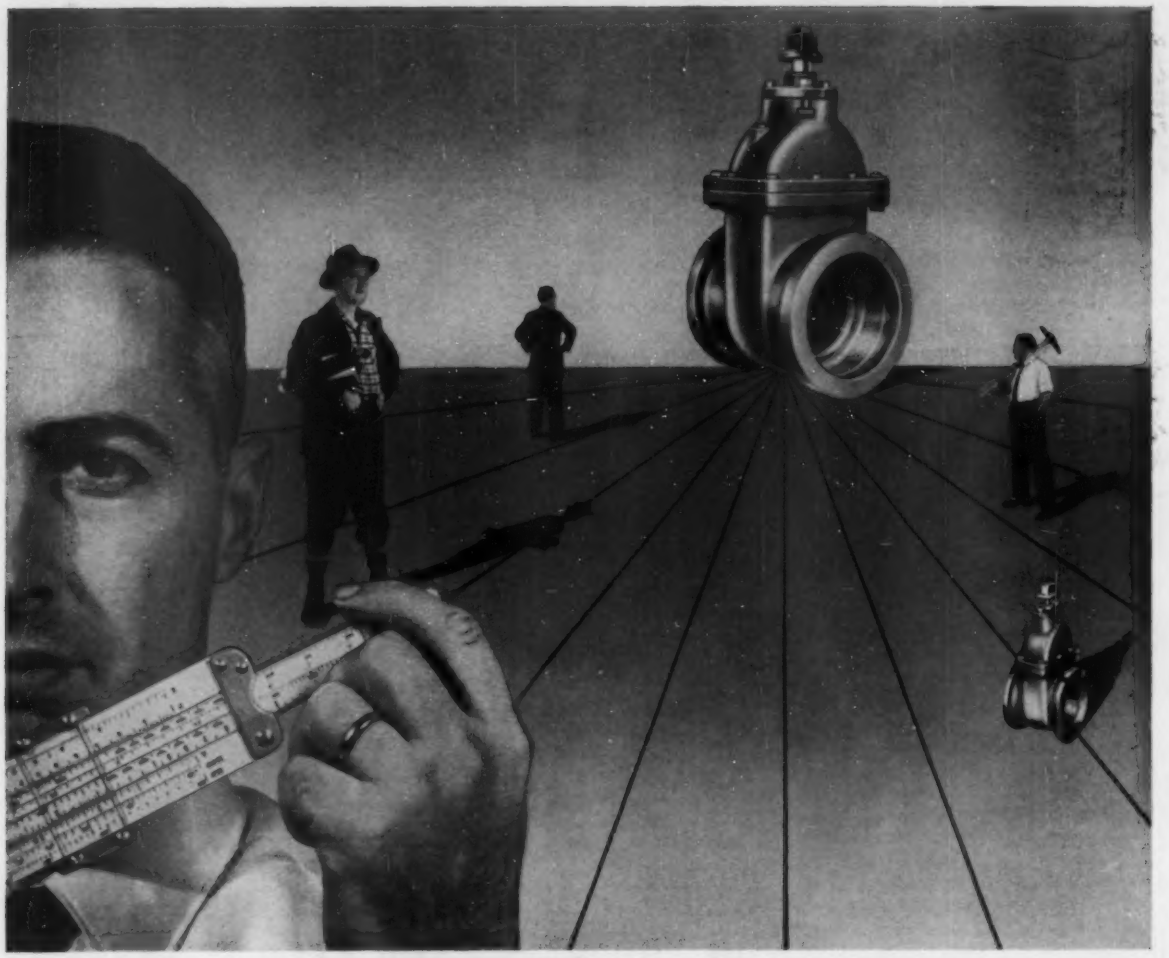

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Zoning & Planning Notes

Edited by NORMAN WILLIAMS, JR.

gineers, and obtained returns from 135. These broke down into the following population groups:

Number of Engineers	Population Range
6	less than 1,000
78	1,000-10,000
7	10,00-20,000
21	20,000-50,000
6	50,000-100,000
4	over 100,000

The areas of the municipalities ranged from less than one square mile to 95 square miles; most were under 10 square miles. There were four different types of governments represented: mayor and council; township committee; commission; and council-manager. In most cases, the engineer reported to the mayor; some reported to the entire council or to a chairman of a committee; some to the manager.

Slightly more than 85% of those reporting have to accept appointments on an annual basis. Only one reported receiving a 5-year contract.

The full-time engineers currently receive salaries ranging from $8,000 to $14,000 annually. Less than one-third have the protection of any pension system. Of those reporting, less than 60% have held their positions for less than 10 years, and nearly 40%, for less than 5.

Duties assigned to these engineers vary according to the size and character of the municipality. In some cases, particularly in the larger cities, the municipal engineer looks after strictly technical engineering matters alone. In some cases, street construction and maintenance, or sewer maintenance is added to the engineering duties.

In smaller municipalities, particularly those with less than 10,000 persons, the engineer is responsible for everything of a technical nature: traffic, parking, roads, planning, zoning, building inspection, parks and recreation, water supply, sewers, and sewage disposal, shade-tree maintenance, refuse collection and disposal.

Because of the wide variety of technical matters that the engineer for the smaller municipality has to care for, his knowledge must be broader and, as a result, in some cases he receives a compensatory salary boost.

The study was prepared under the general direction of I. Russell Riker, Borough Engineer, Princeton, N. J., who served as the chairman of the committee on salaries and welfare for the New Jersey Society of Municipal Engineers.

Special Cards—Not Badges—Identify Borough Officials

ALMOST every member of a municipal official family, at one time or another has had occasion to wish that he had some form of identification card to verify his municipal status. In some municipalities, badges are provided for certain officials. But in general, badges are not popular for a number of reasons—a practical one is that they are bulky and will eventually ruin a perfectly good wallet.

To meet this need for an official identification that can be handily displayed and tucked away, the Borough of Madison, N. J., has adopted a neat, carefully printed identification card. It is signed by the Mayor and Borough Clerk and stamped with the official borough seal. Such cards are issued to all municipal officials, and to all members of the governing body, the Planning Board, the Zoning Board of Adjustment and the Board of Tax Assessors.

The cards are issued annually and are serially numbered. A record of their issuance is kept by the Borough Clerk.

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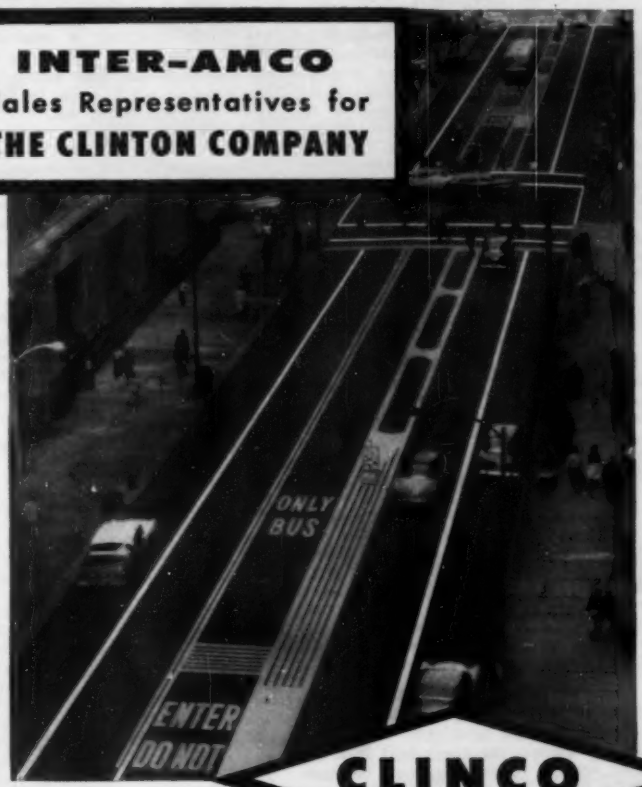

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Zoning & Planning Notes

Edited by NORMAN WILLIAMS, JR.

Agricultural Zoning

KENTUCKY. *Southard* v. *Biddle*, 305 South Western (2d) 762 (Court of Appeals (highest court), October 4, 1957).
PENNSYLVANIA. *Schmalz* v. *Buckingham Township Zoning Board of Adjustment*, 132 Atlantic (2d) 233 (Supreme (highest) Court, June 3, 1957).
ILLINOIS. *Mack* v. *County of Cook*, 142 North Eastern (2d) 785 (Supreme (highest) Court, May 23, 1957).

In the Kentucky case, a farmer owned an irregular 8-acre tract, located outside the city of Lexington but near some residences, which had been used for farming for many years. A small stable and a tobacco barn were recently built on the premises, and an action was brought by nearby residents to enjoin their use, on the grounds that the tobacco barn was unsightly and offensive and overshadowed their yards, and that the stable produced obnoxious odors. It appeared that the barn was used for storing tobacco grown on the premises and on a nearby lot owned by the same farmer, and that the stable was now and for some time had been used only for stripping tobacco. The local zoning ordinance explicitly permitted agricultural uses and accessory buildings, without requiring a building permit or a certificate of occupancy.

Opinion in Kentucky Case

In the opinion, the Court held that the farmer could use the barn for storing tobacco grown either on the same lot or on his other lot nearby. There was a conflict of evidence on the stable, and the Court left undisturbed the decision below that this did not constitute a nuisance.

In the Pennsylvania case, the local zoning ordinance required a 50-foot front yard in a wholly agricultural district, and this case involved a proposed building which would be set back only 42 feet from the highway. The 50-foot requirement was upheld below on the grounds (inter alia) that the restriction had the support of substantial public opinion in the area, and that the area might become suburban in the future.

. . . in the Pennsylvania Case

In the opinion, the Court held that the 50-foot setback requirement must be justified in terms of existing conditions, not possible future developments. It was then pointed out that this provision had little or nothing to do with securing safety from fire, protecting public health, providing adequate light and air, or making it easier to provide public facilities—all of which was true enough. The Court also argued that the same regulation did not prevent the overcrowding of land, or conserve the value of buildings—which points were perhaps arguable. The front yard provision in an agricultural district was therefore held invalid, on the ground that it bore no real relation to public health, safety, morals, or welfare.

. . . in the Illinois Case

The Illinois case involved the application of agricultural zoning restrictions to a farming area located near an airfield, and with a scattering of commercial and industrial establishments. The Court held that the increasing and predominant use of the surrounding land was for business and industrial purposes, and that this had set the future character of the area. The agricultural restrictions were therefore held invalid.

Conflicts between agricultural and urban or semi-urban uses of land, at the outer fringe of towns or metropolitan areas, are becoming an increasingly common problem in zoning litigation. During a transitional period from rural to urban land use, there is of course considerable direct conflict between the two interests involved—exemplified in the Kentucky and Illinois cases above. Moreover, in areas where there is fairly sure to be some more intensive use of the land, other very difficult questions are posed—including a determination of desirable future land use and the prevention of interim development during the transitional period which would be out of character with such future use.

The Pennsylvania case emphasizes again a further familiar point—that zoning regulations cannot always be successfully upheld by vague references to health, safety, morals, and welfare. The Court was clearly correct in pointing out that a 50-foot front yard cannot be justified on most of the grounds mentioned in the opinion. So drastic a front yard requirement is really designed to protect the open appearance of the area, for both present and future, and perhaps in part to hold down future density. Such regulations could perhaps be upheld more successfully if they were argued on their real grounds.

Accessory Use—Parking For Business Use In Residence District

NEW YORK. *People* v. *Franshir*, 163 New York Supplement (2d) 692 (Appellate Division [Intermediate Court] June 10, 1957).

In this case, a business property was being legally operated in a residence district under a variance; and an application was made for use of an adjacent lot, also in a residence district, for accessory parking of cars in connection with the business property. The Court held that an accessory use for a business could not be a valid accessory parking lot in a residential district, and was also not on the same lot as the principal use.

Minimum Lot Area and Lot Width

MASSACHUSETTS. *Publico* v. *Building Inspector of Quincy*, 142 North Eastern (2d) 767 (Supreme (highest) Court, June 3, 1957).
NEW YORK. *Application of Macchia*, 164 New York Supplement (2d) 463 Supreme (lower) Court, May 21, 1957).

In the Massachusetts case, an action for a declaratory judgment, the local zoning regulations required a minimum lot area of 4,500 square feet and a minimum lot width of 50 feet for new development. A special provision permitted development on pre-existing smaller lots, but there was no such provision for existing narrower lots. While reversing on essentially procedural grounds, the Court stated that this existing narrower lot was not covered by the special-exception provision.

In the New York case, a lot just under 8,000 square feet was created in Kings Point before any minimum lot size was required, and was conveyed to its present owner (wife of the original owner) after the zoning regulations required a much larger minimum lot size. The present minimum lot size for the district was 40,000 square feet. The local authorities refused permission to build a single-family house on the lot for a number of reasons, most of which were held invalid by the Court.

In the opinion, the Court held that a permit for such a house could not be refused on the ground that a neighbor had made a reasonable offer to buy the property and consolidate the lots, nor because under the original deed the property was subject to future building regulations. In the latter connection, it was held that so drastic a change, making the lot almost unusable, could not have been contemplated. Moreover, while the local Board of Appeals had found that use of the right-of-way for access to this lot would endanger the safety of children and pedestrians, the Court held that this was irrelevant, since "Traffic problems are within the domain of the police and not the zoning authorities." The Court held that if a lot had been obviously in single and separate ownership since before the zoning regulations, its use for a one-family house could not be forbidden. However, since the pleadings in this case did not allege that fact, and since the property was not on an improved street, relief could not be granted.

Redevelopment of Blighted Vacant Land

ILLINOIS. *Chicago Land Clearance Commission* v. *Quinn Home Builders*, 142 North Eastern (2d) 60 (Supreme (highest) Court, March 20, 1957).

The Illinois legislature authorized condemnation, replanning and redevelopment of blighter vacant land, and this law—upheld in a previous decision*—was again challenged with respect to the same proceeding and property. The legislation permitted condemnation in situations where

". . . because of obsolete platting, diversity of ownership, deterioration of structures or of site improvements, or taxes or special assessment delinquencies exceeding the fair value of the land. . . ."

In this opinion, the Court held that for present purposes it did not really matter whether it was assessed value or fair value that was exceeded: by the amount of tax delinquency in the area. The Court also rejected arguments that the proposed redevelopment was no longer necessary because of an alleged general increase in available housing since the proceedings started, and that the tax delinquency had been largely eliminated by foreclosure suits.

* *People ex rel. Gutknecht* v. *City of Chicago*, 414 Illinois 600, 111 North Eastern (2d) 626 (1953).

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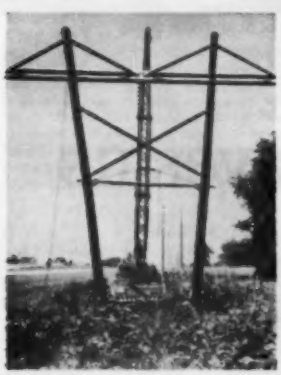

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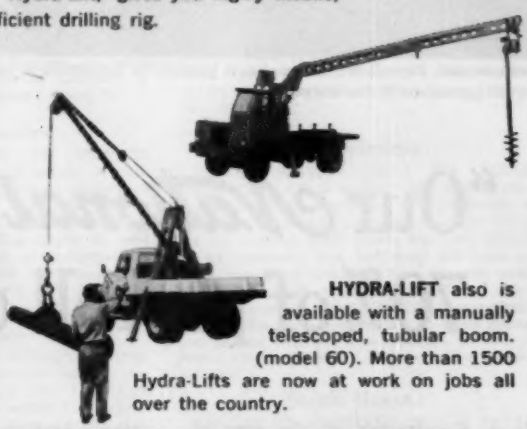

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California

SIGN THAT BRIDGED HOUSE NOT A ROOF SIGN". Sign 16 x 37½ ft. built near freeway. Although supported by two steel piers built on either side of one-story building, owner claimed that it was a roof sign on a building and so permissible. When suit was brought to enjoin use of sign plans were changed so that roof of patio on one side extended to pier supporting sign which bridged building. Court ruled that sign was not a roof sign, was not on a building and that pier supported roof instead of roof supporting pier. Injunction against sign issued. City of Los Angeles v. Barrett, 315 P.2d. 503 (Second District Court of Appeal, Division 2, Sept. 13, 1957.)

Delaware

PUBLIC ROAD ACROSS LOT IN RESIDENCE AREA BARRED. Owner of land zoned as residential desired to construct public road across lot. Neighbors sought injunction. Court ruled, that although not specifically prohibited by zoning statute, building of road would not be a permissible use. Bave v. S & S. Builders, 134 A.2d 709. (Court of Chancery, New Castle, Sept. 26, 1957.)

SLIGHT CHANGES INSUFFICIENT TO INVALIDATE ORDINANCE. Construction in 1955 of apartment house objected to by neighbors on ground that 1948 zoning amendment was invalid because certain provisions of ordinance as passed after public hearing varied from precise description in required advertisements. Court held that changes were slight and that such changes did not constitute a new proposal which would invalidate ordinance. Klaw v. Pan Mar. Construction Co., 135 A.2d 123. (Supreme Court, Oct 16, 1957.)

Florida

LIKELIHOOD OF ZONING CHANGE WELL KNOWN TO PROPERTY OWNER. Area rezoned from residential to light manufacturing and later changed back to residential. Court held that city was not estopped from enforcing latest change against owner, who without applying for building permit, had ordered materials for construction of industrial building, pointing out that when he did so he knew that previous change was an issue in municipal campaign and that revocation was likely. City of Fort Lauderdale v. Lauderdale Industrial Sites, So.2d 47. (Court of Appeal, Second District, Sept. 18, 1957.)

Illinois

REJECTION OF PLANS THAT MET REQUIREMENTS OVERRULED. Village Board rejected plans for gas station in commercial zone without making objection to application, plans or specifications. Court held, that as plans complied with ordinance and no change in grade was contemplated, gas station should be permitted. People ex rel Kohout v. Village of North Riverside, 144 N.E.2d 828. (Appellate Court, First District, Third Division, June 21, 1957.)

SERVICE STATION AT BUSY INTERSECTION APPROVED. Owner of triangular lot at busy interesection sought declaratory judgment ruling invalid county ordinance restricting area to single-family residences. Owner desired to use lot for service station. After considering character of area, Court held that as there would be little gain to the public and a great loss to the owner if ordinance were enforced, station should be permitted. La Salle National Bank of Chicago v. County of Cook, 145 N.E.2d 65. (Supreme Court, Sept. 20, 1957.)

Kentucky

MIXING PLANTS HELD PROPER ACCESSORY USE IN QUARRY OPERATION. Operation of asphalt and concrete mixing plants in residential district challenged. Quarry was legally operated as non-conforming use and Court ruled that the operation of the mixing plants was necessary and customary extension of the working of the quarry and so could be continued. Court also commented on fact that objecting neighbors had watched more than $400,000 being spent on mixing plants before taking action. Silliman v. Falls City Stone Company, 305 S.W.2d 322. (Court of Appeals, Sept. 20, 1957.)

Michigan

ORDINANCE FAILED TO PROVIDE FOR INJUNCTIVE RELIEF. Village brought suit to enjoin construction of building within 10 ft. of front lot line under ordinance which contained no provision for use of injunction as means of enforcement. Also claimed that building was nuisance. Court held that absence of provision for injunction made ordinance unenforceable by that remedy and pointed out that violation of an ordinance does not of itself create a nuisance. Village of Port Austin v. Parsons, 85 N.W.2d 120. (Supreme Court, Oct. 7, 1957.)

HEAVY TRAFFIC IS FACTOR IN INVALIDATING ORDINANCE. Owner of six vacant lots challenged ordinance restricting area to residential use. Testimony showed that township near Detroit was being engulfed by growth of metropolitan area, that highway bordering lots carried 29,000 vehicles every 24 hours and that 92 per cent of lots facing highway had been zoned as commercial. Court ruled that attempt to retain residential character of area was unrealistic. Frendo v. Township of Southfield, 85 N.W.2d 130. (Supreme Court, Oct. 7, 1957.)

Mississippi

CHILDREN QUALIFY AS BOARDERS. Ordinance permitted "taking in boarders "not over 6 in number in residence zone. Woman operated nursery and kindergarten and boarded 6 children. Objecting neighbors claimed that children were not boarders as defined in the ordinance, but Court ruled that ordinance did not designate the age of boarders and that children could remain. City of Gulfport v. Daniels, 97 So.2d 218. (Supreme Court Oct. 7, 1957.)

New Hampshire

GARAGE RESTRICTED TO PRIVATE CARS. Permit for three-stall garage in residence district revoked by Board of Adjustment after building was nearly completed. Court upheld Board in barring storage of owner's oil trucks but held that building could be used for housing private cars as an incidental use in a residence area. Dumair v. Somersworth, 134 A.2d 700. (Supreme Court, Sept. 30, 1957.)

New Jersey

FAULTY ORDINANCE NULLIFIES FINE. Sewage treatment plan constructed without permit and operating company was fined $200 under ordinance which permitted fines up to $1,000. As statute forbade fines of more than $200, Court held that penalty provision of ordinance under which fine was levied was invalid, thus nullifying fine even though it was for permitted amount. State v. Laurel Mills Sewerage Corp., 134 A.2d 720. (Superior Court, Appellate Division, Sept. 23, 1957.)

New York

ZONING CHANGE HELD PREREQUISITE TO CANCELLATION OF CONTRACT. In suit for broker's commission, evidence showed that owner had undertaken to apply for rezoning but attempted to take advantage of cancellation clause before rezoning was accomplished. Court ruled that he could not cancel in advance of rezoning. Polley v. Plainsun Corporation, 166 N.Y.S.2d 184. (Supreme Court, Special Term, Queens County, June 5, 1957.)

HEARING ALL SIDES IS TRUE SPIRIT OF ZONING. In overruling motion which would have prolonged delay in hearing on establishment of shopping center, the Court said: "Under such circumstances the board and the Village Attorney, who as public officials represent the community at large, should have insisted and should now insist that objectors as well as the interested property owner have an unhampered opportunity to present all the facts to the board at a full and complete hearing. • • • This is the true spirit of zoning." Horan v. Board of Appeals, Village of Scarsdale, 166 N.Y.S. 2d 463. (Supreme Court, Westchester County, June 5, 1957.)

New York (Federal)

EVIDENCE OF EFFECTS OF ZONING CHANGE ADMITTED. As result of decision of U.S. Court of Appeals, District Court admitted evidence of zoning change which permitted cabana clubs on South side of boulevard but ruled that such change would not be likely to increase value of lots on North side of boulevard which were being taken by U. S. Government for Nike installation site. United States v. 63.04 Acres of Land Etc., 154 F. Supp. 198. (U. S. District Court, Eastern District, New York, July 30, 1957.)

INTERIOR PRIVATE ROADS A FACTOR IN FIXING MARKET VALUE. Preference of owners of large estates in residential zones for private interior roads taken into consideration in arriving at fair market value of land taken for Nike installation. United States v. 102.93 Acres of Land Etc. 154 F. Supp. 258 (U. S. District Court, Eastern District, New York, July 30, 1957.)

Ohio

NO SUCH THING AS INTERIM ZONING. Stay sought to prevent operation of quarry in unzoned area during period between adoption of zoning plan by local authorities and date of election at which plan would be submitted to voters for ratification or disapproval. Court held that there is no such thing as interim zoning and that ordinance could not be enforced until approved by voters. Hern v. Universal Atlas Cement Co., 144 N.E.2d 917. (Court of Common Pleas, Montgomery County, Aug. 23, 1957.)

Pennsylvania

PICKUP SERVICE FAILS TO ALTER CHARACTER OF WAREHOUSE. Philadelphia ordinance barred warehouse in Commercial A zone. Sears Roebuck used former garage building for keeping stock which was later picked up by customers who had made purchases in retail store, and contended that this use made building a retail establishment. Court ruled that, in spite of these individual transactions, building has the characteristics of a warehouse and so was barred. Sears Roebuck & Co. v. Power, 134 A.2d 659. (Supreme Court, Sept. 30, 1957.)

South Dakota

FAILURE TO ADVERTISE PROVES FATAL TO ZONING LAWS. Truck repair shop and garage operated in residential zone. Ordinance zoning area for residential use had been passed in 1936 without being advertised in newspapers as required by statute. Court ruled that failure to advertise invalidated both original ordinance and revision passed in 1943. (Dodds v. Bickle, 85 N.W.2d 284. (Supreme Court, Oct. 7, 1957.)

Texas

REZONING AND WIDENING OF HIGHWAY FAIL TO VOID RESTRICTION. Although city had rezoned area from residential to commercial and street had been widened from 60 ft. to a six-lane highway 120 ft. in width, Court, after reviewing entire situation, held that change in character of neighborhood was not sufficient to nullify restrictions in deeds. Murphy v. Davis, 305 S.W.2d 218. (Court of Civil Appeals, Beaumont, July 3, 1957: Rehearing Denied, Sept. 11, 1957.)

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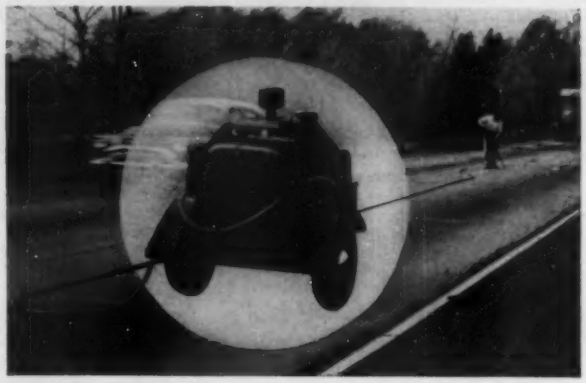

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Legal Notes and Decisions

Prepared by NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS
Charles S. Rhyne, General Counsel

Garbage Truck Regulation Sustained

In action by garbage hauler to recover damages from city for depriving hauler of livelihood by passage of ordinance prohibiting use of certain types of garbage trucks, held, action will not lie. *Barnett* v. *City of Mineral Wells*, 295 S.W.2d 924 (Tex. Civ. App., Nov. 23, 1956)

Going-Out-Of-Business Ordinance Constitutional

In action by businessman who failed to apply for license to conduct going-out-of-business sale to enjoin enforcement of distress merchandise ordinance, held that ordinance did not create unconstitutional classification of sales. *Foltzer* v. *City of Cincinnati* 137 N.E.2d 523 (Ohio App., Feb. 13, 1956)

Indigent Control—Father Liable For Public Support

In contract action by town against father for public support of father's minor children under statute allowing such suit by agency of state, held that town could recover. *Town of Bennington* v. *Telford*, 127 A.2d 275 (Vt., Nov. 6, 1956)

Industrial Sites—Acquisition Of Sustained

In action for declaratory judgment by village to determine validity of statute permitting municipality to issue special revenue bonds to acquire industrial sites for sale, construction or lease to companies, held, statute is valid since bonds were not chargeable to village's general credit and since it did not violate constitutional prohibition against donations. *Village of Deming* v. *Hosdreg Co.*, 303 P.2d 920 (N.M., Nov. 20, 1956)

Initiative And Referendum Provision Held Inapplicable

In action to determine whether statute providing for adoption of ordinances by initiative and referendum applied to city, held, statute does not apply to Alabama cities that have not adopted commission form of government. *Shew* v. *City of Gadsden*, 90 So.2d 768 (Ala., Nov. 15, 1956)

Licenses—Junk Shop—Operating In Violation Of Law Justifies Denial Of Permit

In action to review denial of license to operate junk shop, held that prior willful and knowing use of premises for proposed use without license justified denial. *Savage* v. *Commissioner of Licenses of New York City*, 159 N.Y.S.2d 456 (N. Y. Sup. Ct., App. Div., 2d Dept., Feb. 11, 1957)

Minerals Under Streets Belong To City

In action by landowner against city to determine right to oil, gas, and other minerals under adjacent alleys and streets where city had leased mining rights to third party, held, adjacent owner has no right to minerals under dedicated, public streets until they are vacated. *Belgum* v. *City of Kimball*, 81 N.W.2d 205 (Neb., Feb. 22, 1957)

Notice of Defect Must Be Shown—Recovery Denied

In action against abutting owner and city by pedestrian who fell on defective sidewalk, held, city not liable where it had not received notice of defect within 10 days prior to injury as required by city charter. *Fuller* v. *City of Mankato*, 80 N.W.2d 9 (Minn., Dec. 14, 1956).

Parking Meters Valid As To Knife Sharpener

In suit to declare parking meter ordinance invalid by one engaged in sharpening knives on truck, held, ordinance valid and did not deny plaintiff equal protection or due process. *Fostini* v. *City of Grand Rapids*, 81 N.W.2d 393 (Mich., Feb. 28, 1957)

Parking—Searchlight Truck Within Advertising Ban

Under New York City ordinance prohibiting parking for purpose of advertising, held, truck with mounted searchlight located across from theater advertising movie premier is within prohibition even though truck itself contained no printed advertising. *People* v. *Wendelken*, 156 N.Y.S.2d 129.

Peddlers—Religious Articles Salesman Not Within "Green River" Ordinance

On appeal from prosecution of violation of ordinance prohibiting solicitation in residential area where defendant gave sermon and tried to sell religious writings at cost, held, not guilty. *City of Anchorage* v. *Berry*, 146 F. Supp. 868 (Alaska, May 11, 1956)

Planning—Municipal Planning Act May Require House On Land That Abuts Street

In action to contest grant of exception from Municipal Planning Act's requirement that dwellings be built on land abutting improved road, held that hardship burdening other lots equally did not justify exception. *Phillips* v. *Board of Adj. of the Town of Westfield*, 125 A.2d 562 (N. J. Super. Ct., Oct. 4, 1956)

Plumbing Code—Septic Tank Installers May Connect To Sewer System

In action by plumbers to declare ordinance permitting those who install septic tanks to make connections with sewer system invalid under statute requiring plumbers to have certificates, held that since statute does not define plumbing, city can. *City of Hollywood* v. *Blair*, 93 So.2d 60 (Fla., Feb. 13, 1957)

Prisoners—Recapture Of—Liability For Injury During

In action by pedestrian struck by bullet while police were attempting to recapture fleeing prisoner, held that city would not be liable even if it had been negligent in permitting escape. *Scott* v. *City of New York*, 155 N.Y.S.2d 787 (N.Y. Sup. Ct., App. Div., 2d Dept., Oct. 8, 1956)

Railroads—Assessment For Paving Invalid

In action by railroad to contest levy of assessment for paving of street abutting tracks, held that since property was devoted to railroad uses for longer period than foreseeable life of paving, railroad did not receive special benefits from paving and could not be assessed. *New York Central R.R.* v. *Town of Glasgow*, 95 S.E.2d 420 (W. Va., Dec. 4, 1956)

Rent Control Ordinance Held Invalid

In action for declaratory judgment to determine validity of ordinance containing rent and eviction controls, held, eviction controls conflicted with statute permitting summary eviction so that whole ordinance was invalid. *Burton* v. *City of Hartford*, 127 A.2d 251 (Conn., Nov. 20, 1956)

Rest Home Regulation Invalid

In action by owner of private nursing home to test code amendment requiring one or more registered professional nurses as may be required by commissioner at all nursing homes, held, amendment was without uniform standards and was unlawful delegation of power. *Wilner* v. *Department of Health*, 150 N.Y.S.2d 601 (N.Y. Sup. Ct., Westchester Cty., Jan. 3, 1957)

Railroad Transfer Company Licensing Ordinance Invalid Exercise Of Police Power

In action by railroads and transfer company to declare ordinance granting city control over licensing and operation of company carrying baggage and passengers between terminals, held, ordinance was unreasonable burden on interstate commerce. *Atchison, Topeka, and Santa Fe R.R.* v. *City of Chicago*, 240 F.2d 930 (7th Cir., Jan. 17, 1957)

Schools—Fall From Ramp—City Not Liable

Under "safe place" statute requiring municipality to maintain public buildings where plaintiff fell from ramp leading to boiler room, held that ramp was not "public building" and that statute extends only to areas used or held out to be used by the public. *Hemmingway* v. *City of Janesville*, 81 N.W.2d 492 (Wis., Mar. 5, 1957)

Streets—Flash Flood—City Liable

In action by driver of automobile thrown from car by flash flood caused by rains at intersection, held, municipality responsible for failure to keep streets reasonably safe but not for failure to provide adequate sewers. *Booth* v. *District of Columbia*, 241 F.2d 437 (D.C. Cir., Nov. 1, 1956).

Streets—Sweeping Machine in Collision—City Not Liable

Operation of street sweeping machine is governmental function so that city is not answerable for injuries arising out of collision with car. *Norred* v. *City of Shreveport*, 90 So.2d 571 (La. App., Oct. 25, 1956).

Trees—City Liable for Fall of Decayed Tree

In action by occupants of automobile against city for injuries caused when decayed tree abutting highway fell, held that city is liable where property owner had requested city to remove tree two months prior to accident. *Barron* v. *City of Natchez*, 90 So.2d 673 (Miss., Nov. 19, 1956)

Water—Filling Of Irrigation Ditch—City Liable For

In action by farmer against city where city had deprived him of water during growing season by filling up lateral irrigation ditch, held that city is liable for negligently depriving farmer of water. *Rascoe* v. *Town of Farmington*, 304 P.2d 575 (N.M., Dec. 6, 1956)

Zoning—Nonconforming, Illegal Use Denied

In action to allow use of land for drag races where re-zoning ordinance prohibited such use unless nonconforming, held that where plaintiffs had, prior to time of re-zoning, operated drag races illegally without special permit, no legal right to continue races as nonconforming use was established. *Troutman* v. *Aiken*, 96 S.E.2d 585 (Ga., Jan. 15, 1957)

Recent City Manager Appointments

George E. Bean
San Diego, Calif.

R. D. Heitsch, Jr.
Rock Island, Ill.

John S. Koontz
Pampa, Texas

R. H. van Deusen
Mount Holly, N. J.

Fred E. Weisbrod
Painesville, Ohio

Calvin M. Lakin
Port Huron, Mich.

DAN E. ANDERSEN, who had previously been city administrator of Daly City, Calif., has been appointed manager of San Rafael, Calif., succeeding William H. Parness.

JOSEPH BANTA, safety-service director of St. Marys, Ohio, was recently appointed the first city manager of Clyde, Ohio.

RICHARD BARTON, manager of Mt. Pleasant, Tenn., was recently appointed manager of Kingstree, S. C.

GEORGE E. BEAN, manager of Peoria, Ill., for four years is the new manager of San Diego, Calif., succeeding O. W. Campbell. He was previously manager of Escanaba, Pontiac, and Grand Rapids, Mich. Mr. Bean was president of ICMA in 1953.

VICTOR BORTNICK, assistant city manager of Parsippany-Troy Hills, N. J., has been appointed first city manager of Moundsville, W. Va.

RICHARD CUSTER, manager of Kenosha, Wis., for the past five years, was recently appointed the first city manager of Zanesville, Ohio. Mr. Custer was previously manager of Ft. Fairfield, Maine, and Windsor, Conn.

C. RICHARD FOOTE, administrative assistant in Fairborn, Ohio, was recently appointed the first city manager of Batavia, N. Y.

SAMUEL GREY, administrative assistant of Kalamazoo, Mich., was recently appointed the first city manager of Richmond, Mich. He was previously assistant to the manager in Ambridge, Pa.

ROBERT A. HANCOCK, superintendent of public works in Bedford, Mass., was appointed city manager of Randolph, Mass., succeeding Charles R. Iovino. He was previously manager of Randolph, Vt.

ROBERT D. HEITSCH, JR., manager of Mt. Clemens, Mich., for three years, was recently appointed manager of Rock Island, Ill., succeeding Cornelius Bodine, Jr. Mr. Heitsch was previously manager of Davison and Wayne, Mich., and Farmington, Conn.

OSCAR HESCH, manager of Covington, Ky., for the past two years, was recently appointed manager of Newport, Ky. Mr. Hesch was manager of Newport on two other occasions for a period of five years.

JOHN S. KOONTZ, purchasing agent and acting manager of Pampa, Texas, was recently appointed manager of that city.

DUDLEY N. LAPHAM, administrative assistant in Long Beach, Calif., was recently appointed city manager of La Mesa, Calif., succeeding Lester Halcomb. Mr. Lapham was previously personnel director and administrative assistant in Alhambra, Calif.

CALVIN M. LAKIN, manager of Mexico, Mo., for four years, was recently appointed manager of Port Huron, Mich., succeeding Jay F. Gibbs who is retiring. Mr. Lakin was previously manager of Norway, Mich.

GEORGE C. MERKEL, city engineer of Grinnell, Iowa, was appointed city manager of that city, succeeding M. B. Starr.

ROYCE W. OWENS, administrator of Golden Valley, Minn., was recently appointed city manager of Deerfield, Ill., succeeding Marwood F. Rupp. He was previously manager of the Chamber of Commerce in Montevideo, Minn.

C. W. REMALEY, JR., on the staff of the University of Local Government at the University of Pittsburgh, has been appointed city manager of Springdale, Pa. Mr. Remaley had previously been city manager of Springdale, Pa., for 14 years.

WALTER SALES, administrative assistant at Bozeman, Mont., for the past two and one-half years, was recently appointed manager of Clarinda, Iowa, succeeding R. H. van Deusen.

LAWRENCE C. SAVAGE, JR., personnel director of Saginaw, Mich., is the new manager of Cheboygan, Mich., succeeding Donald L. Brown.

TOM G. SMITH, a local business man, was appointed city manager of Lake Worth, Fla., succeeding Roy W. Gies.

R. H. VAN DEUSEN, city manager of Clarinda, Iowa, for over seven years, is the new manager of Mount Holly, N. J., succeeding William P. Hatch. Mr. van Deusen was previously manager of Green Cove Springs, Fla.

ERNEST F. WATKINS, city manager of Cartersville, Ga., for the past four years, is the new manager of Panama City, Fla., succeeding Grady Courtney.

GRAHAM W. WATT, assistant city manager of Kansas City, Mo., was recently appointed the first city manager of Alton, Ill.

FRED E. WEISBROD, manager of Oberlin, Ohio, for two years, was recently appointed manager of Painesville, Ohio. He was previously assistant to the public works director, Silver Springs, Md.

EDWIN E. WHEDON, city engineer and public works director of Mount Clemens, Mich., was recently appointed city manager of that city, succeeding Robert D. Heitsch, Jr.

RANDOLPH G. WHITTLE, JR., now serving in the U. S. Navy as a Lt. j.g., was recently appointed city manager of Bluefield, W. Va., succeeding William L. Kell. He was previously assistant to the manager in Charlotte, N. C., and in South Boston, Va.

ORIN F. NOLTING,
Executive Director
The International City Managers' Assn.

Employee Fringe Benefits Studied

HOW DOES A CITY allocate its employee fringe benefits? A fringe benefit study recently completed by Richmond, Calif., points up some relevant statistics.

Richmond (population 99,545) estimates the annual cost of fringe benefits enjoyed by its employees at $1,027,954. Out of this sum, $608,401, or 59%, is in payment for time now worked, and $419,553, or 41%, for employee security. In its present fiscal year the city is operating on a slightly greater than $7-million budget for general city services and a $3 million budget for its sewer district.

Scheduled work hours per year per employee were estimated to be 2,080 hours. The 40-hour week general employee totals 1,734.8 hours in straight-time productive hours and gets 345.2 hours in average paid time off. He distributes his paid time off as follows, in hours per year: vacation, 110.64; coffee break, 75.59; holidays taken, 88; sick leave, 62.39; injury leave, 4.75; and funeral leave, 3.83.

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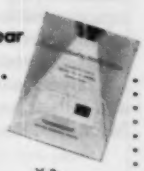

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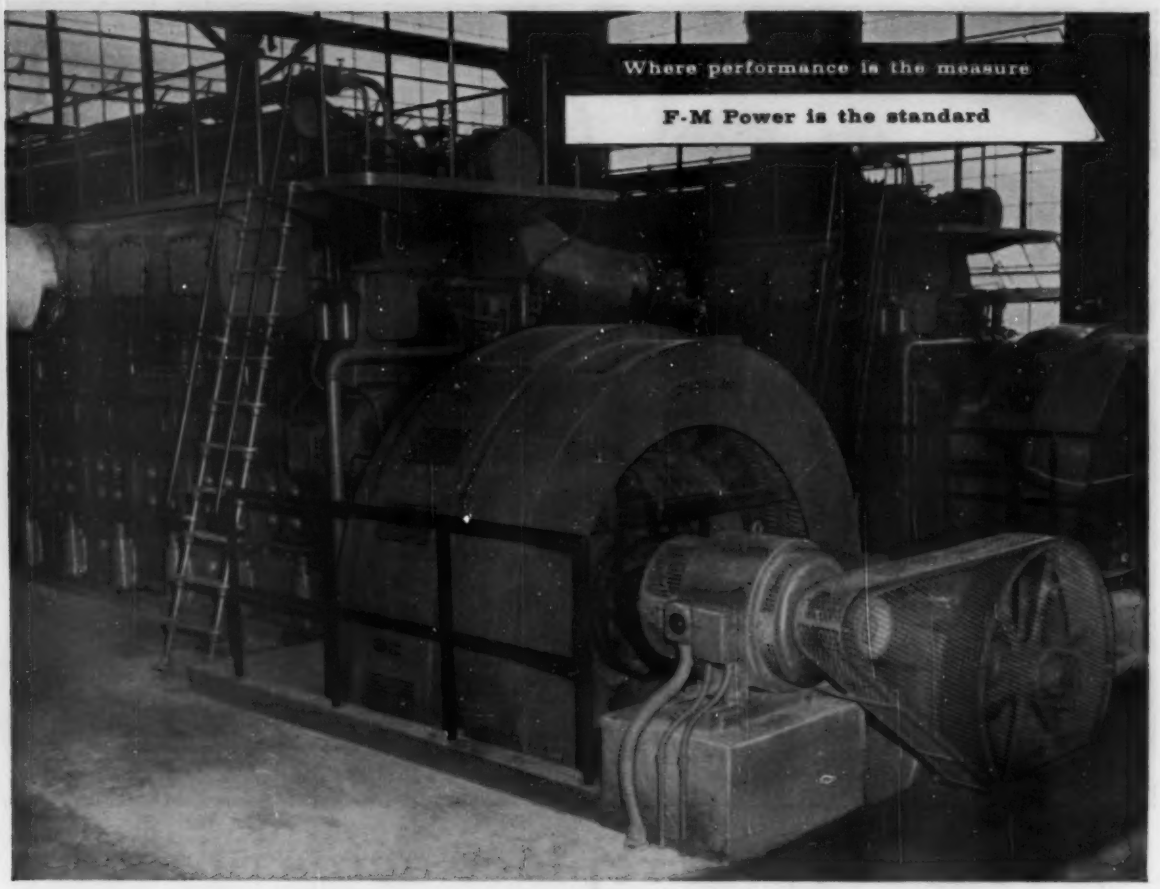

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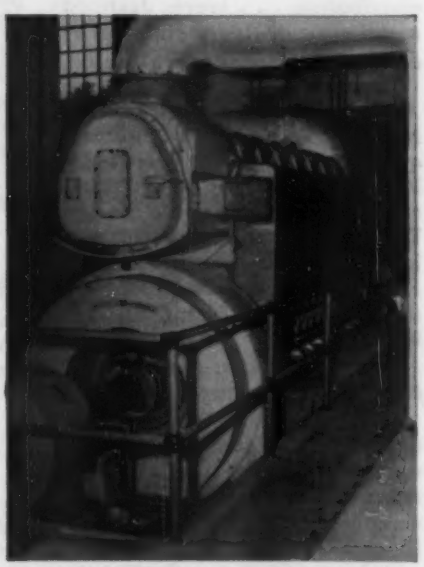

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Conventions — When & Where

Conventions listed this month for the first time are indicated by an asterisk (*)

Feb. 5-7—Indianapolis, Ind.
AMERICAN WATER WORKS ASSOCIATION—Indiana Section. Annual Meeting (Sheraton-Lincoln Hotel). Secretary, C. H. Canham, 3517 Manor Court, Indianapolis.

Feb. 10-12—New York, N. Y.
ASSOCIATION OF TOWNS OF THE STATE OF NEW YORK. Annual Meeting (Hotels Commodore and Roosevelt). Exec. Sec., Edward F. N. Uthe, 91 State St., Albany, N. Y.

Feb. 10-13—Dallas, Texas
ASSOCIATED GENERAL CONTRACTORS OF AMERICA, INC. Annual Convention (Statler-Hilton Hotel). Exec. Dir., James D. Marshall, 1227 Munsey Bldg., Washington 4, D. C.

Feb. 17-19—Montreal, Quebec
ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS. Annual Meeting (Sheraton Mt. Royal Hotel). Sec-Treas., Ward K. Parr, Box 376, Ann Arbor, Mich.

***Feb. 21-22—Mineral Wells, Texas**
TEXAS BEACH AND POOL ASSOCIATION. Annual Convention (Baker Hotel). Exec. Sec., V. M. Ehlers, C.E., Director Division of Sanitary Engineering, Texas State Dept. of Health, 410 East 5th St., Austin, Texas.

Feb. 25-28—Anaheim, Calif.
CALIFORNIA MUNICIPAL UTILITIES ASSOCIATION. Annual Meeting (Disneyland Hotel). Sec., F. V. Frey, Room 108, City Hall, Pasadena, Calif.

March 2-7—College Station, Texas
TEXAS WATER AND SEWAGE WORKS ASSOCIATION. Annual Meeting (Memorial Student Center, A & M College). Sec., V. M. Ehlers 2202 Indian Trail, Austin, Texas.

March 12-14—Atlantic City, N. J.
NEW JERSEY SEWAGE AND INDUSTRIAL WASTES ASSOCIATION. Annual Meeting (Traymore Hotel). Sec.-Treas., Michael S. Kachorsky, P. O. Box 68, Manville, N. J.

March 12-14—Atlantic City, N. J.
NEW JERSEY MOSQUITO EXTERMINATION ASSOCIATION. Annual Meeting (Haddon Hall Hotel). Sec., Bailey B. Pepper, c/o Agricultural Experiment Station, New Brunswick, N. J.

March 12-14—Baton Rouge, La.
SHORT COURSE FOR WATER AND SEWAGE PERSONNEL. Annual Course (Pleasant Hall, Louisiana State University). Exec. Sec., George West, Superintendent, Greater Lake Charles Water Company, Lake Charles, La.

March 12-14—Salina, Kans.
AMERICAN WATER WORKS ASSOCIATION—Kansas Section. Annual Meeting (Lamer Hotel). Sec., Harry W. Badley, Neptune Meter Co., 119 W. Cloud, Salina, Kans.

March 12-15—New Orleans, La.
AMERICAN CONCRETE PIPE ASSOCIATION. 50th Anniversary Convention (Roosevelt Hotel). Managing Director, Howard F. Peckworth, 228 N. LaSalle St., Chicago 1, Ill.

March 13-15—Shreveport, La.
LOUISIANA MUNICIPAL ASSOCIATION. Annual Meeting (Captain Shreve Hotel). Sec.-Treas., Gladys R. Hughes, 338 Reymond Bldg., Baton Rouge, La.

March 20-22—Missoula, Mont.
AMERICAN WATER WORKS ASSOCIATION—Montana Section. Annual Meeting (Florence Hotel). Sec., Arthur W. Clarkson, Asst. Director, Division of Environmental Sanitation, State Board of Health, Helena.

March 20-22—Missoula, Mont.
MONTANA SEWAGE WORKS ASSOCIATION. Annual Meeting (Florence Hotel). Sec.-Treas., Harvey W. Taylor, 910 Helena Ave., Helena, Mont.

March 23-25—Atlanta, Ga.
AMERICAN WATER WORKS ASSOCIATION—Southeastern Section. Annual Meeting (Dinkler Plaza Hotel). Sec., N. M. deJarnette, Division of Water Pollution Control, State Dept. of Health, 309 State Office Bldg., Atlanta, Ga.

March 23-26—New York, N. Y.
AMERICAN SOCIETY FOR PUBLIC ADMINISTRATION. Annual Conference (Hotel Statler). For information address John P. Keith, ASPA, 6042 Kimbark Ave., Chicago 37, Ill.

March 24-26—Fayetteville, Ark.
ARKANSAS WATER AND SEWAGE CONFERENCE. Annual Meeting. (For information address C. W. Oxford, Professor of Chemical Engineering, University of Arkansas, Fayetteville, Ark.

March 26-28—Schenectady, N. Y.
AMERICAN WATER WORKS ASSOCIATION—New York Section. Annual Meeting (Van Curler Hotel). Sec., Kimball Blanchard, Ludlow Valve Mfg. Co., Inc., 11 W. 42nd St., New York 36, N. Y.

March 26-28—Chicago, Ill.
AMERICAN WATER WORKS ASSOCIATION—Illinois Section. Annual Meeting (LaSalle Hotel). Sec., Dewey W. Johnson, Cast Iron Pipe Research Association, 3440 Prudential Plaza, Chicago, Ill.

April 7-10—West Lafayette, Ind.
PURDUE ROAD SCHOOL. Forty-fourth Annual Meeting (Purdue Memorial Union Building). For information address K. B. Woods, Head, School of Civil Engineering, Purdue University, Lafayette, Ind.

April 16-18—Lincoln, Nebr.
AMERICAN WATER WORKS ASSOCIATION—Nebraska Section. Annual Meeting (Cornhusker Hotel). Exec. Sec., Jere Ott, 2818 21st St., Columbus, Nebr.

April 20-25—Dallas, Texas
AMERICAN WATER WORKS ASSOCIATION. Annual Convention (Convention Hall). Sec., Harry E. Jordan, AWWA, 2 Park Avenue, New York 16, N. Y.

***April 23-26—Stockton, Calif.**
CALIFORNIA SEWAGE AND INDUSTRIAL WASTES ASSOCIATION. Annual Convention (Hotel Stockton). Sec.-Treas., Robert J. Barietta, 719 S. Loara St., Anaheim, Calif.

***May 5-7—West Lafayette, Ind.**
PURDUE INDUSTRIAL WASTE CONFERENCE. Annual Meeting (Purdue Memorial Union). Exec. Sec., Don E. Bloodgoord, Professor of Sanitary Engineering, Civil Engineering Bldg., Purdue University, W. Lafayette, Ind.

***May 6-8—Washington, D. C.**
NATIONAL HIGHWAY USERS CONFERENCE. Annual Meeting (Mayflower Hotel). Dir., Arthur C Butler, 906 National Press Bldg., Washington, D. C.

***May 14-17—Washington, D. C.**
NATIONAL RIVERS AND HARBORS CONGRESS. Annual Convention (Mayflower Hotel). Exec. Vice Pres., William H. Webb, 1028 Connecticut Ave., N.W., Washington 6, D. C.

***May 15-17—Spokane, Wash.**
AMERICAN WATER WORKS ASSOCIATION—Pacific Northwest Section. Annual Meeting (Davenport Hotel)). Exec. Sec., F. D. Jones, Asst. Water Supt., Spokane Water Department, 306 City Hall, Spokane, Wash.

***May 15-17—Tucson, Ariz.**
AMERICAN WATER WORKS ASSOCIATION—Arizona Section. Annual Meeting (El Conquistador Hotel). Sec.-Treas., Stanford I. Roth, Supervisor of Water Collections, Division of Water & Sewers, Phoenix, Ariz.

May 18-22—Washington, D. C.
AMERICAN SOCIETY OF PLANNING OFFICIALS, National Planning Conference (Statler Hotel). Exec. Dir., Dennis O'Harrow, ASPO, 1313 E. 60th St., Chicago 37, Ill.

***June 1-4—Lake Placid, N. Y.**
NEW YORK CONFERENCE OF MAYORS. Annual Conference (Lake Placid Club). Exec-Sec., Addison Mallery, 6 Elk St., Albany, N. Y.

***June 1-4—Victoria, British Columbia**
CANADIAN FEDERATION OF MAYORS AND MUNICIPALITIES. Annual Conference (The Empress Hotel). Exec. Dir., George S. Mooney, Office M-33, Mount Royal Hotel, Montreal, Quebec

***June 8-12—Milwaukee, Wis.**
MUNICIPAL FINANCE OFFICERS ASSOCIATION OF THE UNITED STATES AND CANADA. Annual Conference (Hotel Schroeder). Exec. Dir., Joseph F. Clark, 1313 E. 60th St., Chicago 37, Ill.

***June 22-23—Washington, D. C.**
NATIONAL HOUSING CONFERENCE. Annual Meeting (Hotel Statler). Exec. Vice Pres., Lee F. Johnson, 1025 Connecticut Ave., N.W., Washington 6, D. C.

Citizenship and Politics

THAT AMERICAN DEMOCRACY as it has evolved is based squarely on the political party system is known to most of us, and the implications of this are clear, but far too many of us are so indolent politically that we willingly leave it to the other fellow to do the work and manage the affairs of our political parties.

We are quick to complain about what "they" at city hall, the courthouse, the state house or in the halls of Congress do or don't do, but we are slow to do our part in the party of our choice to make certain that those chosen for office are qualified for their posts and that the public interest gets dedicated as well as competent attention at their hands.

We charge that politics is sometimes corrupt, and we therefore conclude that political party activity is not respectable. We know, but we too often fail to act on the knowledge, that politics can be honest when honest men are politicians and political activity can be respectable when respectable citizens participate in it.

—From "Educating the Citizen for Politics," published by The Maurice and Laura Falk Foundation, Pittsburgh, Pa. 1957.

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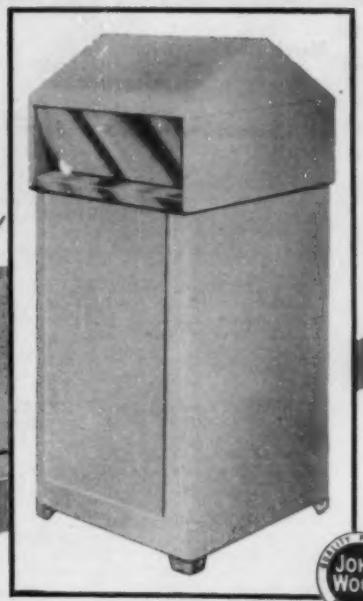

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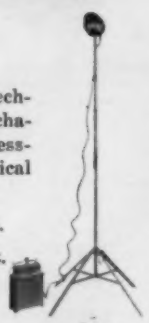

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Municipal and Civic Publications

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Comprehensive Plan for Denver

DENVER TOMORROW—*Office of the Mayor, City and County of Denver, City and County Bldg., Denver 2, Colo.* 1957. *Unpaged; maps; illus.*

This handsomely illustrated booklet presents a summary of detailed maps and data which comprise the Denver Comprehensive Plan. The plan calls for the preservation of the central business district as the main point of concentration of commerce, but decentralizes some warehousing along rail and highway lines leading outward from the center. More new, rather than converted, higher density housing is planned to answer the demands of rising proportions of single persons, childless "new" families, and older families in Denver's population.

Because, as the plan statement puts it, "this is the age of the automobile," transportation improvements appear limited to new expressways and widenings or extensions of major streets. An extensive urban renewal program is called for, for areas including and surrounding the business district. An outline capital improvement program is proposed.

Analyzing Chronic Illness in an Urban Community

CHRONIC ILLNESS IN A LARGE CITY—*Chronic Illness in the United States, Vol. IV. A Commonwealth Fund Book, Harvard University Press, Cambridge 38, Mass.* 620 *pp.* $8.

This is the fourth volume in the series reporting on the work of the National Commission On Chronic Illness which, from 1949-1956, studied chronic disease in the United States.

For its purpose, the present book turns to Baltimore where a sample of an entire noninstitutional urban population group was studied exhaustively to see what there was in the way of chronic disease and disability in an urban community. The study explores such questions as: What are the patterns in the prevalence of chronic disease and disability by age, sex, color, economic level and other social and economic factors? What are the needs of the chronically ill for care? What is the rehabilitative potential of chronically ill and disabled individuals? The data should be helpful to cities in developing programs for the chronically ill.

This book is a companion to Volume Three which reports on "Chronic Illness In A Rural Area."

Library Plan for a County

PUBLIC LIBRARY SERVICE, ANOKA COUNTY, MINNESOTA—*A Survey and a Plan. By Frederick Wezeman. The Library School, The University of Minnesota, Minneapolis.* 1957. 28 *pp.* $2.

This report, authorized in 1956 by the Board of County Commissioners of Anoka County, Minn., evaluates and analyzes the present library services in the county. It gives special emphasis on financial support and adequacy of such services. Basic factors affecting library services in the county and projections of future growth are presented. This study recommends the development of a public library system for the county which is growing rapidly because it is adjacent to both Saint Paul and Minneapolis. Alternate plans for the development of a public library system are also presented.

Land Tenure and Taxation

LAND TENURE AND TAXATION IN AMERICA—*By Aaron M. Sakolski, Ph.D., Robert Schalkenbach Foundation, 50 East 69th St., New York 21, N. Y.* 1957. 316 *pp.* $3.50.

As pointed out in the publishers' foreword, the task to which this scholarly treatise is dedicated is primarily historical. In it the author of "The Great American Land Bubble" (Harper & Brothers, 1932), the late Aaron M. Sakolski, traces the evolution of our land-tenure system from colonial times to the present day.

The book, and especially the chapters on "The Rise of Urban Real Estate Values" and "The Land and Taxes", should prove of interest and value to economists and others concerned with real estate speculation and the taxation of land values.

A Metropolitan Plan for Sacramento

THE GOVERNMENT OF METROPOLITAN SACRAMENTO—*Prepared for the Sacramento Metropolitan Area Advisory Committee, Sacramento, Calif., by the Public Administration Service, 1313 East 60th St., Chicago 37, Ill.* 1957. 261 *pp.*

This metropolitan area report concerns a governmental study made for the City and County of Sacramento.

The book describes a metropolitan government plan for Sacramento while at the same time alternative solutions are also discussed. The recommended plan calls for a metropolitan or city-county executive appointment by a legislative council which would be elective. Functioning under this metropolitan structure would be a new five-borough system, which would serve as (1) an advisory link between the areas and the Metropolitan (legislative) Council; (2) a convenient set of divisions for administrative decentralization of governmental functions; and (3) a basis for creating community centers and neighborhood councils.

In presenting its recommendations, this study, amply illustrated by maps, fine photographs, and charts, also analyzes in detail the growth of Sacramento, its governmental patterns and problems.

PR Bibliography Has Governmental Listing

A PUBLIC RELATIONS BIBLIOGRAPHY AND REFERENCE AND FILM GUIDES—*By Scott M. Cutlip. University of Wisconsin Press, 811 State St., Madison, Wis.* 1957. 313 *pp.* $5.

A 23-page section of this bibliography is devoted to titles dealing specifically with governmental public relations. The remainder of the more than 3,600 entries on separate books, articles and pamphlets cover the whole range of public relations activities under such headings as Theory and Development of Public Relations; Communications, Tools and Media; Relations with External Publics; Fields of Public Relations Practice; and Professionalism in Public Relations.

Lists of other bibliographies, of organizations of public relations practitioners, and of periodicals listing public relations titles are also included. There is a guide to selected films on public relations practices.

New York City's Health Insurance Plan Assessed

HEALTH AND MEDICAL CARE IN NEW YORK CITY—*A Report by the Committee for the Special Research Project in the Health Insurance Plan of Greater New York. Published for the Commonwealth Fund by Harvard University Press, Cambridge, Mass.* 1957. 275 *pp.* $7.50.

This very carefully prepared study measures the experience of the Health Insurance Plan of Greater New York since its inception in 1947. This unique plan, which provides medical insurance and care in contrast to hospitalization insurance and care, grew out of the concern of former New York City Mayor Fiorello La Guardia about the inability of people of modest income to meet the rising costs of adequate medical care. As with hospitalization plans, this plan is privately managed.

The study measures the health of a sample of 376,413 persons enrolled in H.I.P. in 1952 with the health of a sample of non-member persons living in New York City at that time. The report also compares the medical needs of the New York City population with those of the H.I.P. population. Other comparisons include the amount of medical care, including preventive services received by the general population and the H.I.P. population.

UN Seminar Highlights Middle Income Housing

HOUSING THROUGH NON-PROFIT ORGANIZATIONS—*Housing, Building and Planning No. 10, Department of Economic and Social Affairs, United Nations, New York, N. Y.* 1956. 121 *pp.* $1.25.

To save themselves from social and economic bankruptcy the nation's cities are fast learning that they will have to woo middle-income families back from the sprawling suburbs into their boundaries. This is becoming more and more evident as talk of the need for "middle income housing" becomes more and more frequent. Hence, this report on the successful experience in middle-income housing production and operation in Denmark will be of special interest to all city officials concerned with local housing policy. Although the seminar from which this report was produced was aimed at Latin American countries, the principles involved have application to American cities.

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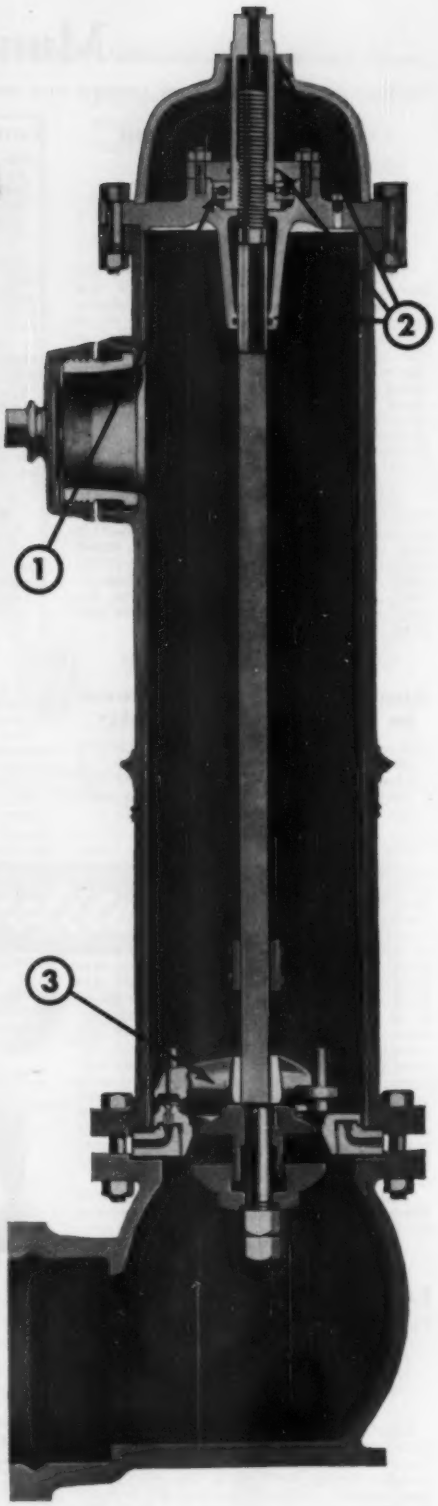

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Procedures for Making Housing Surveys

HOUSING SURVEY PROCEDURES—*A Guide for small Tennessee communities. Publication No. 266. Tennessee State Planning Commission, Cordell Hull Bldg., Nashville 3, Tenn.* 1956. 52 *pp.* $1.

This is the third publication of a study made by the Tennessee Planning Commission on the many aspects of housing codes.

The housing survey system described here is based on procedures developed by the American Public Health Association Committee of the Hygiene of Housing with certain modifications so that the survey can be carried out in any small city with the resources found there while at the same time it could be adapted to a large community. The report sets forth survey procedures, a checklist of conditions, the penalty points assigned each condition, and the final rating method.

This report should prove of value in aiding local agencies to formulate checklists, estimate the budget, the duration of the survey and the personnel necessary.

Two previous publications in the series, both reviewed earlier in these pages, are "An Analysis of Selected Housing Ordinances," and "A Minimum Housing Ordinance."

Urban Land Reports

Recent issues of *Urban Land*, published by Urban Land Institute, 1200 18th St. NW., Washington 6, D. C. Single copies $1; Members, 50 cents.

WILL DOWNTOWN FACE UP TO ITS FUTURE? —*By James W. Rouse. February* 1957. *Vol. XVI, No. 2.* 6 *pp.*

This article, dealing with downtown's dilemma, points out some of the basic factors that are bringing about changing relationships between downtown and the suburbs. The author concludes that downtown must, through redevelopment, become a dynamic, beautiful, and central part of metropolitan life and offers suggestions as to how this can be achieved. Mr. Rouse, a civic leader of Baltimore, is a real estate and shopping center developer.

ANALYZING THE SHOPPING CENTER MARKET— *By Larry Smith. January* 1957. *Vol. XVI, No. 1.* 8 *pp.*

In this article, based on remarks made at the plan analysis session of the Community Builders' Council meeting in New Orleans last year, a real estate consultant analyzes the types of market studies and the usefulness of each from the standpoint of the shopping center developer. In addition to pointing out pitfalls, the article offers constructive suggestions for estimating productivity, for evaluating location, tenancy size, amount of building area and for judging the nature of competition between centers and between tenants within a single center.

COORDINATION OF URBAN RENEWAL WITH THE URBAN HIGHWAY PROGRAM—*By James W. Follin. December* 1956. *Vol. XV, No. 11.* 6 *pp.*

In this issue, the former commissioner of the federal Urban Renewal Administration discusses the coordination needed for making both the urban renewal program and the urban highway program effective. The report suggests how urban renewal and urban highway programs can be coordinated, and describes how this is achieved in some communities. Finally, Mr. Follin urges that states and local governments assume responsibility for coordinated planning in the two programs.

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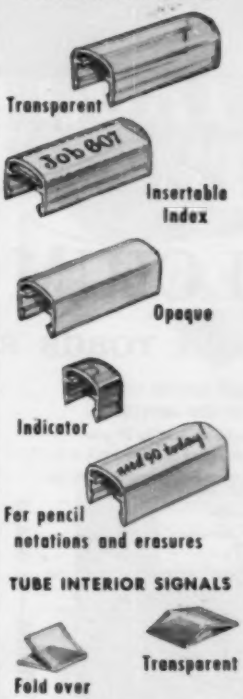

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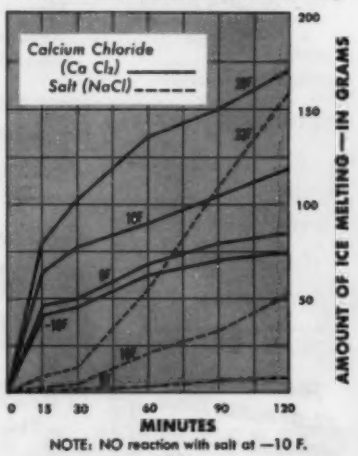
350 Grams ice in 7" by 11" pan
40 Grams chemical (based on 100% NaCl or $CaCl_2$)



NOTE: NO reaction with salt at —10 F.

Columbia Calcium Chloride is available in both High Test Flake (94-97% $CaCl_2$ content) and Regular Flake (77-80% $CaCl_2$).

COLUMBIA-SOUTHERN CHEMICAL CORPORATION
SUBSIDIARY OF PITTSBURGH PLATE GLASS COMPANY
ONE GATEWAY CENTER · PITTSBURGH 22 · PENNSYLVANIA

DISTRICT OFFICES: Cincinnati • Charlotte
Chicago • Cleveland • Boston • New York
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IN CANADA: Standard Chemical Limited and its Commercial Chemicals Division

Safeguard Winter Traffic with Columbia Calcium Chloride

Here's How KENNEDY'S Safeton Hydrant

The Annual Report —a "Formula"

How To Make Reports—*By Pan Dodd Wheeler. Technical Bulletin No. 30, Municipal Technical Advisory Service, Division of University Extension, University of Tennessee, Knoxville, Tenn.* 1957. 42 *pp.*

Today, the concept of a municipal report of a progressive town or city is different from that of the traditional town report of even a decade ago. The report must not only tell a factual story of city government, it must first attract citizen attention and hold his interest to see the story through. It is towards this new effective approach in municipal reporting with which this booklet is concerned.

In describing a "formula" for the annual report, author Pan Dodd Wheeler, who is also executive director for the Government Public Relations Association, draws heavily on experiences and on the reports produced by cities over the country during the past decade.

Blueprint for Metropolitan Planning for Chicago

Metropolitan Area Planning—*A report of the Committee On Metropolitan Area Planning. Metropolitan Housing and Planning Council, 69 West Washington Street, Chicago, Ill.* 1956. 157 *pp., maps.* $5.

This metropolitan study for the Chicago region offers what may be considered as a blueprint for organizing a metropolitan planning machinery that would function across city, county, and state boundaries. The report, resulting from a metropolitan area planning study for Northeastern Illinois and Northwestern Indiana, explains and describes a legislative, organizational, and administrative framework for setting up a metropolitan planning agency that would comprise, in whole or in part, the counties of Lake, DuPage, and Cook, McHenry, Kane, Kendall, and Will in Illinois and the counties of Lake, Porter, and La Porte in Indiana.

As recommended in the report, there would be a metropolitan planning commission with 10 district planning councils. The role of private organizations (e.g., the Chicago Regional Planning Association) and the role of public organizations (e.g., the Chicago Plan Commission) in the metropolitan planning process is also outlined in the report. In seeking for alternative solutions, the study further examines the experience of other metropolitan agencies in the United States and Canada.

This report had its background in the Conference on Metropolitan Area Planning sponsored by the Metropolitan Housing and Planning Council of Chicago in 1956.

Other Reports Received

Administration & Government

Pennsylvania—Acts of the 1957 Pennsylvania General Assembly Affecting Local Governments. Prepared by Alan W. Maloney. Bureau of Municipal Affairs, Pennsylvania Department of Internal Affairs, Harrisburg.

Air Pollution

General—Automobile Exhaust and Smog Formation. Report No. 21 of the Air Pollution Foundation, Los Angeles, Calif. 1957. 103 pp. $3.

Annual Reports

Fredericksburg, Va.—1956-1957 Annual Report.

Lockport, La.—1956-1957 Annual Report.

Oglesby, Ill.—Semi-Annual Report for the period May 1957 to October 1957.

Richmond, Va.—1956-1957 Annual Report.

Finance & Taxation

Canada—Municipal Financing and Governmental Revenues. From *Effective Government*, issued by the Citizens Research Institute of Canada, Toronto, Canada. 1957. 50 cents.

Louisville, Ky.—1956-1957 Annual Report of the Director of Finance.

Pennsylvania—1955 Financial Statistics, Second Class Townships of Pennsylvania Eastern Counties. Prepared by the Division of Local Government Financial Statistics, Bureau of Municipal Affairs, Pennsylvania Department of Internal Affairs, Harrisburg. 1957.

Randolph, Wis.—Budget for 1958.

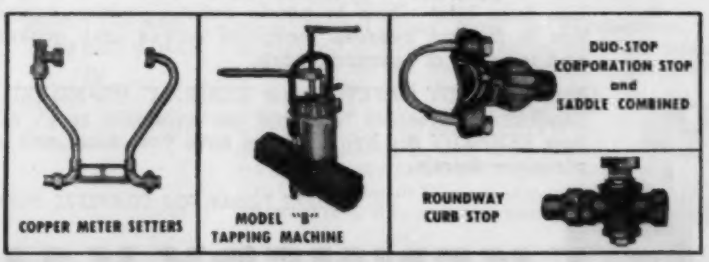
San Antonio, Texas—Financial Report for four months ending November 1957.

Miscellaneous

Virginia—Charges Imposed for Sprinkler Systems and Fire Hydrants in Virginia Municipalities. Report No. 390 prepared by the League of Virginia Municipalities, Richmond, Va. 1957. 6 pp. $1. Free to all Virginia municipal officials

High quality water service bronze, 85-5-5-5 mix . . .
Plugs individually ground in for perfect fit . . .
Corporation stops can be installed with any standard tapping machine . . .
Threads interchangeable with those of other manufacturers . . .
Conform to all A.W.W.A. standards.

The same quality is maintained in the complete HAYS line of Water Service Products. Send for literature.

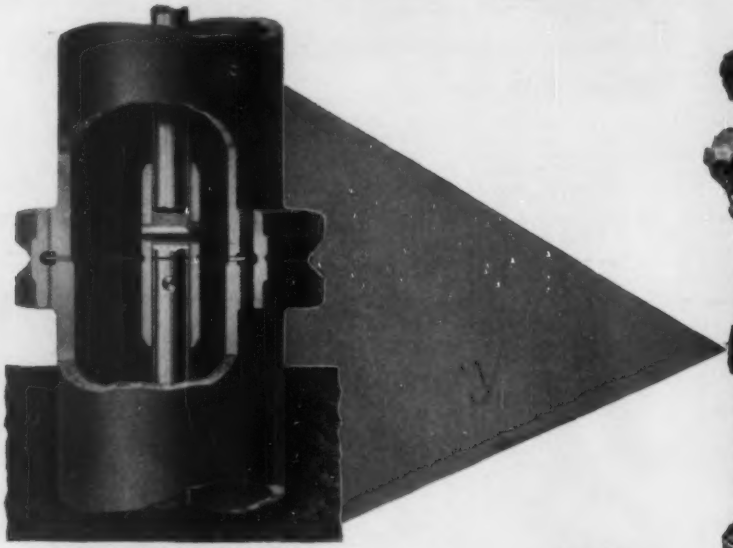


Join the A. W. W. A. HAYS is one of the eleven Charter Members of the Manufacturers Section of the American Water Works Association.

HAYS

WATER WORKS PRODUCTS
HAYS MANUFACTURING CO.
ERIE, PA.

Here's How KENNEDY'S Safetop Hydrant Saves Maintenance and Repair Costs . . .



Construction of Safety Breakable Section of KENNEDY SAFETOP Fire Hydrant.

Fig. 1280
KENNEDY SAFETOP
FIRE HYDRANT

A broken KENNEDY SAFETOP . . . and all you need to repair it: When struck a smashing impact and broken, here's how the KENNEDY SAFETOP fire hydrant breaks. A clean break at the Safety Breakable Section means no damage to the major and expensive parts of the hydrant and no loss of water.

With this set of breakage repair parts, the repair job can be done by one man, with a few standard tools, without excavation. The entire repair job takes about fifteen minutes.

KENNEDY SAFETOP fire hydrants are designed and constructed with these outstanding features: Protection against flooding upon accidental breakage; maximum supply of water at nozzles available from supply main; minimum friction loss from inlet elbow to nozzle outlets; positive, complete drainage after operation to prevent freezing; leakproof valves and gaskets; easy, fast inspection and renewal of operating parts.

Both KENNEDY SAFETOP and KENNEDY STANDARD fire hydrants are non-flooding compression type and are available in 4", 4½", 5" and 6" sizes. See how KENNEDY fire hydrants can save you time and money. Write today for complete details.

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VALVES • PIPE FITTINGS • FIRE HYDRANTS

• OFFICE AND WAREHOUSES IN NEW YORK, CHICAGO, SAN FRANCISCO, ATLANTA • SALES REPRESENTATIVES IN PRINCIPAL CITIES •

Planning, Zoning & Housing

FAIR LAWN, BERGEN CTY., N. J.—Master Plan Studies, No. 1: Land Use. Prepared in cooperation with the Borough Planning Board by Community Planning Associates, Inc., Princeton, N. J.

GENERAL—Housing in the Economy. 1956 Annual report of the Housing and Home Finance Agency, Office of the Administrator. 44 pp. 30 cents. Available from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.

HAWAII—An Inventory of Available Information on Land Use in Hawaii, Volume I: Evaluation and Recommendations. Prepared for the Territory of Hawaii Economic Planning and Coordination Authority, by Harland Bartholomew and Associates, Honolulu, Hawaii.

MIAMI, FLA.—1956-1957 Annual Report of the City Planning and Zoning Board.

Public Health

CUYAHOGA COUNTY, OHIO—1956 Annual Report of the Cuyahoga County Welfare Department, Cleveland, Ohio.

Streets

PHILADELPHIA, PA.—Paving the Way. Progress Report, 1952-1956, prepared by the Philadelphia Department of Streets.

Water

ELMIRA, N. Y.—1956 Annual Report of the Elmira Water Board.

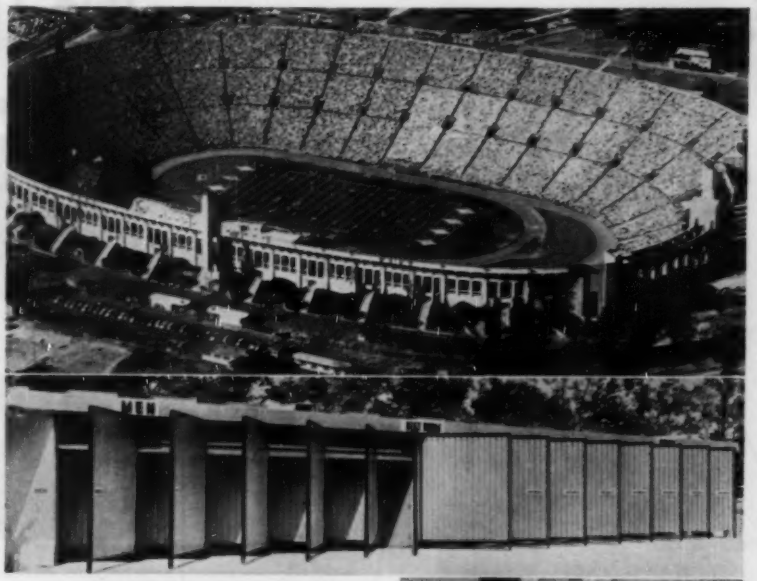
Planner Shortage Worsens

THE SHORTAGE of planners today is more acute than it was a year ago, according to a recent survey by the American Society of Planning Officials.

The number of planning jobs has continued to climb steadily in recent years as indicated by figures compiled from the job columns of ASPO's publications, *Newsletter* and *Jobs In Planning*. While in 1952 the Society advertised 132 jobs, in 1956 the comparable figure had risen to 514. The increased tempo of urban renewal is cited as a major cause for this thriving demand. Against this climb in planning jobs is the fact that the nation's schools and universities have not been turning out enough graduates. The Society estimates that in 1957 there were 200 graduates in the planning field, a good percentage of them foreigners who were expected to return to their native country.

The following tabulation shows the number of jobs advertised by ASPO in recent years:

Year	No. of positions advertised
1952	137
1953	128
1954	201
1955	413
1956	514



In the washrooms of the

LOS ANGELES COLISEUM

BRADLEY DUO-WASHFOUNTAINS PROVIDE THE FINEST IN MODERN SANITARY WASHING FACILITIES

Doing things big and *right* is an established Los Angeles habit as is again illustrated in the building of the Los Angeles Coliseum.

It follows then that facilities for the patrons were not overlooked. In the modern rest-rooms, the most sanitary wash fixtures were specified—Bradley Washfountains.

These Duos provide tempered water from a central sprayhead at the touch of the foot on the treadle. There are no faucets to manipulate—no chance of passing along infections.

The large bowl is self-flushing preventing left-over residue from the previous user or for the ones to follow. The instant the foot is removed, the water supply is cut off.

*HERE'S THE NEW 1958 DUO MODEL

New Model Duos Now in Production. *The illustration at lower left shows the latest model—combining all the features with new beauty, wider foot-treadle, and floor clearance.

You can improve your washrooms with Duos, too. Bulletin K-1204 is just off the press—let us mail you a copy...

BRADLEY WASHFOUNTAIN CO., 2333 W. Michigan St., Milwaukee 1, Wisconsin.

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More and more building contractors specify NEENAH fine quality construction castings FIRST. The Neenah line also includes manhole frames and covers, catch basin inlets and many other items to meet any construction requirement. Write today for your free copy of Catalog "R," second edition: 140 pages with pictures and description.

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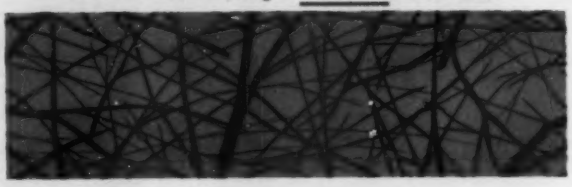
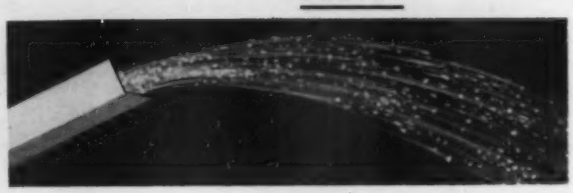
IT'S AN ECONOMIC FACT

You can chip more brush



faster



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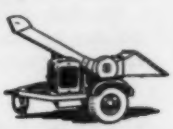
than with any other machine on the market today! Asplundh Chippers can cut your hauling cost 75%, completely eliminate brush burning, and provide a useful, valuable by-product.

So ravenous is its appetite, so powerful its motor, and so fast its chipping action, it is equalled by no other. Yet it is so simple in design that maintenance is reduced to an absolute minimum.

Write *today* for full details. Better—ask for a prompt demonstration, without the slightest obligation.



ASPLUNDH CHIPPER COMPANY

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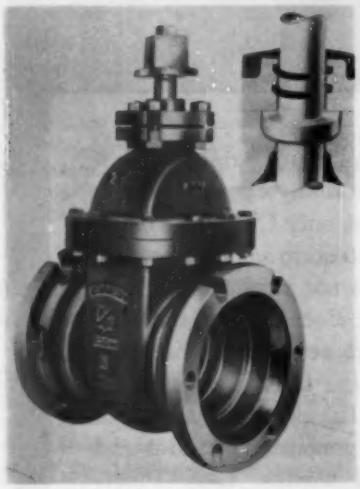
Where to Purchase

Information for officials interested in equipment and services for the construction, operation and maintenance of municipal utilities

Greater Acceptance for O-Ring Gate Valve



An increasing number of municipal water departments are specifying these AWWA standard iron-body, double-disc gate valves with O-Ring construction and mechanical joint ends.

The two O-Ring seals are Buna N synthetic rubber compound of 70 durometer hardness. These are assembled into a high-strength cast iron stuffing box which forms the top thrust bearing for the stem collar. The stuffing box is secured to the valve bonnet with rust-proof steel bolts. The top O-Ring is the dirt seal. The lower O-Ring is the pressure seal eliminating any need of further adjustment. O-Rings are said to provide an excellent seal, preventing the stem from binding and assuring easy valve operation.

Mechanical joint ends are available in diameters ranging from three through 14 inches. The company can supply valves with mechanical joint ends through 48-inch diameters. The valves have inside screw, non-rising stem and parallel seats. Working pressures are 12 inches and smaller, 200 pounds cold water; 14 inches and larger, 150 pounds cold water.

Additional details on these efficient gate valves may be obtained from KENNEDY VALVE MFG. CO., ELMIRA, N. Y. Write directly, or you may use the Post Card on the insert following Page 54. Circle No. 937.

First Econolite Type "F" Traffic Controller

Arthur Loomis, president and Leo Jennings, vice-president and general manager of Econolite Corp., admire the first Type "F" traffic controller made on the company's new production line.

The first completed Type "F" traffic controller to be offered by ECONOLITE CORP., 8900 BELLANCA AVE., LOS ANGELES 45, CALIF., has rolled off the assembly line. Econolite recently purchased the important traffic signal and control business from General Electric's Outdoor Lighting Department in Hendersonville, N. C. A cross-country move of plant equipment, tooling and stock was completed early last November.

The Type "F" controller can be universally applied in the field of pre-timed traffic control. Designed to fulfill present-

New Elm Resistant To Elm Diseases

The Christine Buisman Elm was discovered in Holland a number of years ago by Dr. Christine Buisman. Repeated tests over many years, by the United States Department of Agriculture show that it is extremely resistant to Dutch elm disease and phloem necrosis. The Buisman Elm is a selection of the European Smooth-leaved Elm (Ulmus carpinifolia). It produces straight stems of heavy caliper, with central leaders, without forks or crotches and it has slender but numerous ascending branches which produce a great mass of dark green foliage. Young trees tend to have a broad base and a pyramidal top, but when mature they become round topped like the American Elm. Grow quite rapidly. For further information and prices write

The Willis Nursery Company
OTTAWA, KANSAS

SUBSTITUTE pipe materials combat a few of the many causes of sewer line failure. But only Clay Pipe offers guaranteed protection against them *all*. Clay Pipe does not rust, rot, corrode or disintegrate. Because it is the only chemically-inert sewer line material, it's the only pipe that is completely impervious to the corrosive action of acids and gases generated by industrial and household wastes. Clay Pipe's smooth, hard, vitrified surface keeps wastes flowing freely . . . assures continuing service at full-rated capacities. Clay Pipe takes the extra burden of heavy backfill loads. If you are planning sewer improvements, count on the long-term economies of Vitrified Clay Pipe. It is the only pipe that's absolutely safe against *all* causes of sewer failure. *It never wears out.*

Under Baltimore County, Maryland's Capital Improvement Program, an estimated $5,250,000 will be invested in the long-term protection of Vitrified Clay Pipe sewerage during 1957-58.

Contractor on section illustrated: The Phillip D'Adamo Construction Corp., Baltimore, Maryland

C-558-1

Vitrified **CLAY PIPE** *Never Wears Out*

NATIONAL CLAY PIPE MANUFACTURERS, INC. 1820 N St., N. W. Washington 6, D. C.

311 High Long Bldg., 5 E. Long St., Columbus 15, Ohio • 703 Ninth & Hill Bldg., Los Angeles 15, Calif. • 100 N. La Salle St., Rm. 2100, Chicago 2, Ill. • 206 Mark Bldg., Atlanta, 3, Ga.

day needs, it is quickly adapted to more complex future problems by the simple addition of dials, units, relays and other accessories.

Econolite has manufactured both vehicle and pedestrian signals of its own design for several years. This, plus the added facilities for manufacturing Type "F" controllers and equipment locally, will enable the company to efficiently fulfill the requirements of traffic engineers in the immediate area as well as throughout the country.

Additional details on Econolite equipment may be obtained directly from the manufacturer, or you may use the Post Card on the insert following Page 54. Circle No. 961.

Brush into Chips Quickly, Easily

Now you can cut your brush hauling costs, completely eliminate brush burning and get an added bonus of a valuable mulch as well, with an economical Asplundh Chipper. These units are designed for safe fast, low-cost operation and minimum maintenance. An enlarged feeding area handles bulky brush and branches—to six inches in diameter.

The Asplundh Chipper is built with fewer moving parts, assuring low-cost maintenance and repair. It has a built-in

custom tool compartment designed to protect servicing equipment. An undersiung engine and axle lowers the center of gravity for better tracking.

The Asplundh Chipper is fully described and illustrated in *Bulletin No. 7*. For your copy, write ASPLUNDH CHIPPER CO., 501 YORK RD., JENKINTOWN, PA., or you may use the Post Card on the insert following Page 54. Circle No. 969.

This compact Jaeger Model 2PN, pumps all the water a 2" suction hose can handle. **With 2½" suction hose it pumps more than 14,000 gph.**

Now handle more water with Jaeger pumps

Today's Jaeger Sure Prime pumps deliver performance never before offered—and at slower, long-life operating speeds. For example, a Jaeger 6PH can handle 100,000 gph as a dewatering pump or deliver 975 gpm at 60 psi pressure for well point jetting or gravel washing. Base your pump buying on latest information. See your Jaeger distributor or send for catalog.

THE JAEGER MACHINE CO., 505 Dublin Avenue, Columbus 16, Ohio

AIR COMPRESSORS • MIXERS • PAVING SPREADERS and FINISHERS

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FIRST
STEEL MESH DECK
Still Making History!

The first installation of an open steel grid flooring on any bridge in the world was made in 1932, on the University Bridge, Seattle, Washington, by the Irving Subway Grating Co. The previous solid pavement on the bridge had been plagued by frequent repairs and accidents.

After 24 years this decking is still in service on the Seattle Bridge. It has had no major repairs and has never even been painted. Not a single accident has occured due to the bridge flooring.

Since then, 80% open Irving Decking has been used advantageously on hundreds of other bridges.

This remarkable record of service speaks for itself.

★

Write for complete information on Irving Bridge Decking.

ECONOMICAL
SAFE
DURABLE

"A Fitting Grating for Every Purpose"

IRVICO

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Originators of the Grating Industry

Offices and Plants at
5030 27th St., Long Island City 1, N. Y.
1830 10th St., Oakland 23, California

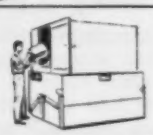
winner of $32,000 on "The $64,000 Question"

George R. Dempster Says . . .

$32,000.00 Is a Lot of Money

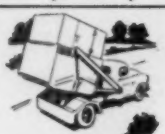
...but many cities save more than that every year with the Dempster Dumpster!

It's a fact! Your city, like hundreds of others, can save taxpayers thousands of dollars every year with our Dempster-Dumpster System of rubbish disposal. Using this low-investment System, one man and one truck-mounted Dempster-Dumpster can handle the entire bulk rubbish accumulation in the commercial district of a good-sized city. The savings are obvious . . . the improvement in city "housekeeping" is astonishing! Merchants love the big, clean Dempster-Dumpster Containers, which provide enclosed rat-proof, fly-proof, scatter-proof storage of rubbish and refuse. Don't let these savings and advantages get away — start checking your bulk waste disposal costs today.



"Containerized" rubbish . . .

is picked up . . .



hauled . . .

and dumped

WRITE TODAY for complete information on our two new time-payment plans.

Dept. AC-2, DEMPSTER BROTHERS, Knoxville 17, Tenn.

America's Leading System of Bulk Rubbish Disposal

THE DEMPSTER DUMPSTER SYSTEM

ANOTHER NEW SCHRAMM PRODUCT . . .

Dependable Air Compressors

Two portable air compressors, Models 55 and 80, are ideal for operating heavy breakers and rock drills for any street construction or maintenance job. These units may be moved by one man or towed at regular automobile speeds. When skid mounted, they are known as Models S-55 or S-80.

Compact Lindsay compressors are easy to operate and inexpensive to maintain. They are equipped with air-cooled 4-cylinder Wisconsin engines, stellite exhaust valves and seats and positive type valve rotators. A tool box is furnished with adequate storage space for tools and accessories. Other features include an adjustable speed governor, automatic unloading with engine slow-down, electric starting, and compressor fan cooling.

Additional details on Lindsay radial type air compressors may be obtained from P. K. LINDSAY CO., INC., EVERETT 49, MASS. Write directly to the manufacturer, or you may use the Post Card located for your convenience on the insert following Page 54. Circle No. 971.

Two-Way Weed Control

A new pre-emergence herbicide for general weed control is now available from Geigy Agricultural Chemicals. Designed primarily to prevent weed growth before it takes place, it can also be used effectively after weed emergence. However, its use prior to weed emergence eliminates the expense and labor of removal when weeds are killed after emergence.

This new herbicide, known as Simazin 50W, is a triazine compound which reaches maximum activity on germinating weeds, acting entirely through the roots. It is non-phytotoxic to foliage and therefore presents little or no drift hazard to nearby crops, shrubbery or ornamentals. Safe to humans and animals, Simazin 50W also will not damage spraying equipment, metal fences or other objects vulnerable to pitting and scarring by corrosive sprays. Due to the low solubility of Simazin 50W, it tends to remain in the upper soil layers with practically no lateral reaching.

Detailed information on the many applications of Simazin 50W may be obtained from GEIGY AGRICULTURAL CHEMICALS, DIVISION OF GEIGY CHEMICAL CORP., SAW MILL RIVER RD., ARDSLEY, N. Y. Write directly, or use the Post Card following Page 54. Circle No. 938.

Keep Cool, mister! with

ARCTIC BOY

portable water coolers

- Rugged Construction . . . good everywhere men work!
- Galvanized inset, hot dipped *after* forming for flaw-free finish!
- Large top opening, easy to ice, fill and clean.
- Send for complete information and booklet "Care and Use of Your Cooler." Write Dept. C-5.

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THE SCHLUETER MFG. CO. • ST. LOUIS 7, MO.

ROBBINS superior TRAFFIC MARKING MATERIALS

For the best in traffic materials, specify—

- Robbins Non-Oxidizing Synthetic Rubber Traffic Cone
- Robbins Hi-Lite Markers
- Robbins Direction Markers Symbols and Legends
- Robbins Vinyline In Solid Strip Or Cut Out Strip
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For complete information, write wire or phone our factory . . . . today!

ROBBINS TIRE & RUBBER CO., INC.
TUSCUMBIA, ALABAMA

Purchasing News

NOW . . .

ANOTHER NEW SCHRAMM PRODUCT . . .

Diesel economy and efficiency at the price of gasoline-driven compressors

Get more air at less cost—with convenience and maneuverability. Schramm's new PNEUMADIESEL "package" makes this possible. Take your choice of the five compact 125 cfm compressor mountings shown—all diesel powered, all top quality, all designed to sell and operate at substantial savings. Check the features of PNEUMADIESEL and you'll see what we mean . . .

Diesel power at the price of gas-powered units.

More compact—lower, shorter, lighter than competitive gasoline or diesel units. Much lighter than average diesel rig—easier to handle.

Fuel economy—uses same fuel as contractor's other equipment. Delivers more air per pound of fuel.

One responsibility—engine-compressor unit designed and built by Schramm—sales, service and *all* parts from your Schramm Dealer.

Lower cost—diesel operation economy at initial price of many gas-driven compressors.

Longer wear—enbloc power unit with heavy duty air cleaners on engine and compressor. Proven piston design outlasts any other method of producing power or compressing air.

See the Yellow Pages for local Sales, Service and Rental of Schramm Air Compressors.

Easier maintenance—90% interchangeability of parts between engine and compressor. Average mechanic can service without special training.

Plus features—12 volt starting, one fuel filling per day, all Pneumadiesel advantages with customary Schramm features.

GET FREE INFORMATION. Now is the time to cut your costs with Pneumadiesel's extra power and efficiency. See Pneumadiesel at your nearest Schramm Dealer—or write us for full details.

125 Pneumadiesel

Standard Diesel Pneumatractor

Heavy Diesel Pneumatractor

Diesel Pneumatractor Rotadrill

Stationary Pneumadiesel for Special Installations

Schramm, Inc.
MANUFACTURERS OF AIR COMPRESSORS
603 North Garfield Ave. • West Chester, Pa.

Purchasing

New Caterpillar Lab

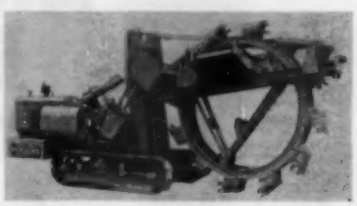
A new Production Metallurgical and Materials Testing Laboratory has been opened by the Caterpillar Tractor Co. at its main plant in Peoria, Ill., according to C. A. Woodley, president of the firm. The new lab replaces older facilities which have been outgrown.

C. A. Woodley

According to Mr. Woodley, the Peoria laboratory has a two-fold purpose. It will provide inspection tools which will insure the quality and integrity of the materials used in Caterpillar products. Too, "it will provide the tools and environment necessary to develop new and better processes to meet future needs."

New Economy Model Wheel-Type Trencher

The crawler-mounted 130, an economy priced wheel-type trencher, is offered by Parsons Co., Newton, Ia. The unit has three wheel speeds—134, 277, and 337 feet per minute—and is designed to dig trenches up to 5 feet-9 inches deep. Five digging speeds for each wheel speed permit a digging range of 12 inches to 18 feet per minute. By changing the sprocket, 15 additional digging speeds are possible.



The 130 will dig a trench up to 20 inches wide, with optional side cutters adding two or four inches. Trench widths with gumbo buckets are 16 and 20 inches, with increases of two inches when optional clearance cutters are used.

Power for the Parsons 130 is furnished by a Waukesha 6-cylinder gasoline engine, delivering 52 hp. The 130 has three forward speeds: 1.09, 1.93, and 2.74 mph. Speed in reverse is 1.20 mph.

Complete information and prices on the 130 may be obtained directly from PARSONS CO., DIV. OF KOEHRING CO., NEWTON, IA., or you may use the Post Card on the insert following Page 54. Circle No. 966.

Purchasing News

Tractor Shovels Clean New York Streets

Part of a 26-unit consignment, the first eight Trojan tractor shovels pictured have just been added to New York City's arsenal of street-cleaning and snow-fighting equipment.

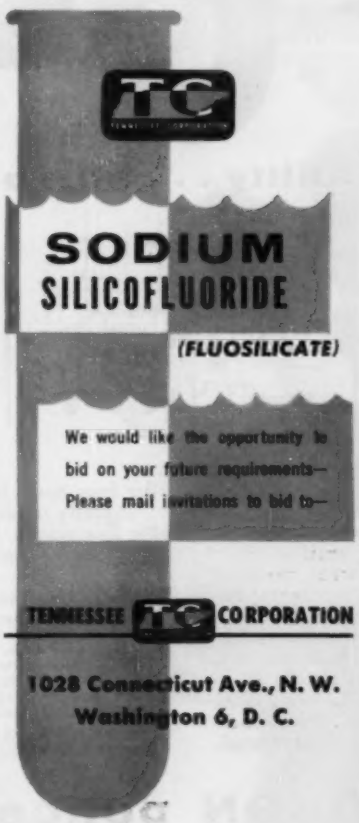
In contrast to the small, slow-moving double can-carrier (8-cubic-feet capacity) being pushed by a sanitation man is this fleet of new Trojan tractor shovels lined up for inspection by New York City's Commissioner of Sanitation Paul Screvane. The 4-wheel-drive tractor shovels, each with a capacity of 2 cubic yards, are used for snow removal and ice control operations during the winter months as well as for general street clean-up during the entire year.

Complete information on Trojan tractor shovels may be obtained from THE YALE & TOWNE MFG. CO., BATAVIA, N. Y. Write directly, or you may use the Post Card on the insert following Page 54. Circle No. 936.

Finest Quality Die Embossed Traffic Signs. A complete line for cities, towns, highways. U.S. Standard and special wordings.

GRIMCO Signs SINCE 1875

GRIMM STAMP & BADGE CO.
8105 Rosalie • St. Louis 17, Mo.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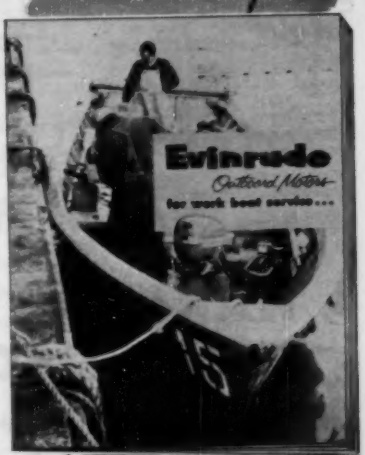

gives you the facts on

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OUTBOARD POWER
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TODAY there's a *new kind* of outboard power for work boat duty! A complete line of new Evinrude *Aquasonic* models so advanced in capability, stamina, and smooth, quiet operation that they set entirely new standards of performance. Get the facts! Send coupon for booklet.

EVINRUDE MOTORS
Division of Outboard, Marine & Mfg. Co.
4626 N. 27th Street, Milwaukee 16, Wisconsin

Send me booklet on outboard power for work boat duty.

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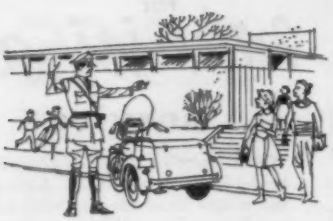
City.....Zone...State.....

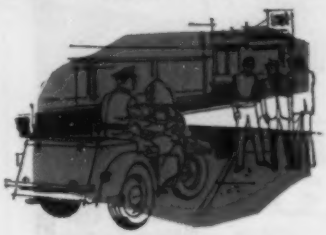
(In Canada: Mfd. by Evinrude Motors of Canada, Peterborough)

Ready for anything!

HARLEY-DAVIDSON Servi-Cars

all-round versatility . . . all-round the clock





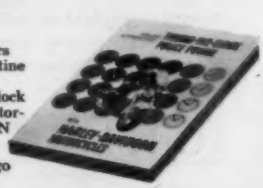
HERE's the mobile work-horse of efficient police departments everywhere. Day and night, these maneuverable three-wheelers are hard at work in progressive communities, large and small — busy patrolling business and residential areas, marking cars, checking meters or traveling from intersection to intersection for spot traffic direction. To these varied duties, add the Servi-Car's street-level effectiveness as a crime-stopper* and you have the most versatile police vehicle on the prowl today.

And the new 1958 Servi-Car is the smoothest riding three-wheeler ever built. New Hydra-Glide front fork greatly reduces fatigue for officers spending long hours in the saddle.

Equally important, Servi-Cars do the job better for *less money*. Besides being simple to maintain, they are economical to operate.

Ask for Informative Booklet

For more information on how Servi-Cars perform on emergency, special or routine duty, ask your dealer for this 16-page booklet—"More Effective Round-the-Clock Police Power with Harley-Davidson Motorcycles" or write: HARLEY-DAVIDSON MOTOR CO., Milwaukee 1, Wis.



*Ask for statistics on how crime rates go down when Servi-Cars are on the job.

HARLEY-DAVIDSON police motorcycles

Prefab Asphalt Liner for Water, Sewage

Use the Aqualiner in reservoirs, municipal water supply systems, irrigation canals and many other municipal installations. This prefabricated asphalt liner is designed for the heavy-duty containment of water, wastes, sewage, brines and sludges. It effectively controls and stops both leakage and seepage.

The Aqualiner is actually a heavy-duty asphalt mastic sheet, surfaced with asphalt-saturated felt liners. The liner is coated with a "high-melt-point," weather-resistant film for added resistance to exposure conditions. It is available in two thicknesses—½- and ¼-inch—in 4-foot widths.

Special features of the Aqualiner include the ease and speed with which it is installed, and the long, economical service it provides, regardless of weather conditions. Too, the liner is readily adaptable to ground movement.

Additional details on the new prefabricated asphalt liner are available from PRESSTITE-KEYSTONE ENGINEERING PRODUCTS CO., 39TH AND CHOUTEAU, ST. LOUIS, MO. Write directly, or you may use the Post Card on the insert following Page 54. Circle No. 960.

Improved Air Compressor

Davey Compressor Co. has designed the new 600 cfm rotary compressor for greater operating efficiency and with fewer working parts than ordinary models. Called the Davey Hydrovane Rotary 600, the unit is said to be the only multi-stage rotary compressor with a single free-floating rotor. This rotor is so located that it is constantly concentric with one side only of the stator. Its blades are of the segmented type, inserted radially in longitudinal slots. They move continuously in a straight line from the stator center, and cannot "cock" or bind.

Cooling oil is injected by means of two multi-stage cooling oil injection chambers. This produces continuous cooling action, lowering air discharge temperatures as much as 100° below ordinary compressors. This multi-staging is also said to reduce the engine horsepower required to operate the unit, thus delivering more air from less fuel.

Davey Hydrovane Rotary 600s are available in 4-wheel trailer and skid mountings. They are fully described in *Form No. E-267*. For your copy, write directly to the DAVEY COMPRESSOR CO., KENT, OHIO, or you may use the Post Card on the insert following Page 54. Circle No. 959.

the leader in water chlorination for over 30 years

Use HTH in either form for sure elimination of bacteria, algae, fungi and odors from reservoirs, wells, mains, spray ponds, filters and other danger spots.

HTH Granular—Free-flowing, fast-dissolving. Packed in 100-lb. lithographed steel drums and in cases of nine 5-lb. cans.

HTH Tablets—Slow-dissolving chlorine in its most modern form. Packed in 100-lb. drums and in cases of twelve 3¼-lb. cans.

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5881

ELECTRIC PLANT
NEWS

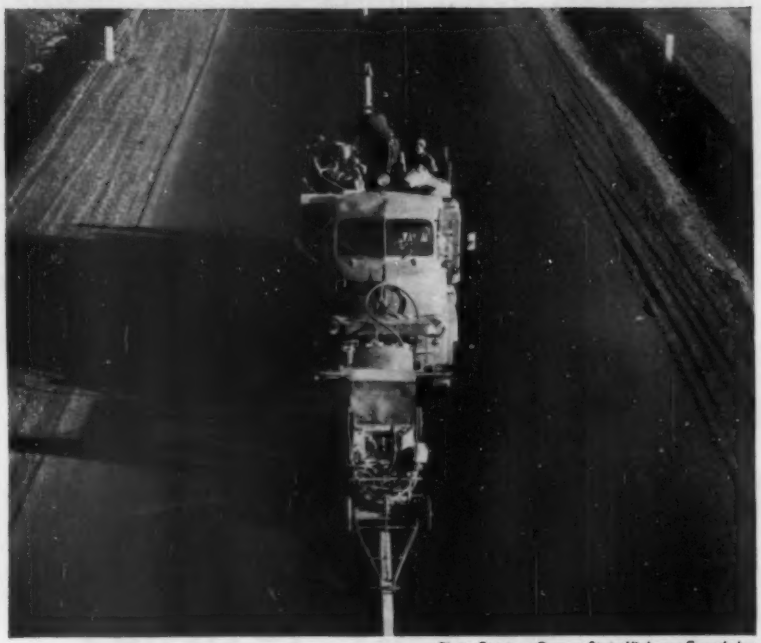


Photo Courtesy Oregon State Highway Commission

Hot paint "welds" to highway, dries faster, goes farther

Onan Electric Plant mounted on vehicle supplies current for 6,000-watt heating element.

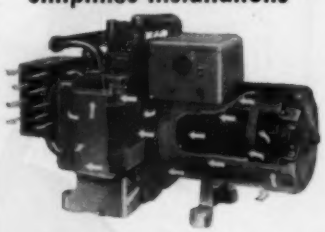
Highway striping is a headache for maintenance departments. The paint dries too slowly, wears off too quickly . . . and a lot of paint is required.

The vehicle shown above helps with all three of these problems by heating the paint to 160° before application. Hot paint dries within five minutes, it wears longer because it penetrates and bonds to the surface . . . and 30% less paint is required.

Current for the two 3,000-watt heating elements is supplied by an Onan 7,500-watt electric plant, powered by a smooth-running, two-cylinder, air-cooled Onan gasoline engine.

Wherever you need electric power . . . for lighting, motor-driven equipment, or heating . . . and highline power is not available . . . an Onan Electric Plant will do the job.

Onan Vacu-Flo cooling simplifies installations



With Onan's Vacu-Flo system, air is drawn, (rather than blown) through generator and engine, and discharged through a duct to the outside. An Onan air-cooled plant with Vacu-Flo can be installed in a small compartment within a truck or trailer.

A. C. Models: 500 to 75,000 watts. Also D. C. and Battery Charging units

Write for literature on the size and type electric plant you need.

D. W. ONAN & SONS INC.

2556A University Ave. S. E., Minneapolis 14, Minnesota

ELECTRIC PLANTS • AIR-COOLED ENGINES • GENERATORS • KAB KOOLER

Purchasing

FWD Expects 20% Sales Rise

G. F. DeCoursin

Outstanding acceptance of newly-developed FWD commercial trucks and increased emphasis on the government missile program are likely to increase FWD sales 20% to more than $25 million in 1958, according to G. F. DeCoursin, vice-president of sales for the Four Wheel Drive Auto Co., Clintonville, Wis. In addition, FWD expects a continued good level of sales in its manufacture of fire-fighting apparatus, snowplow and road maintenance equipment.

Tractors and Loaders for '58

The Oliver Corp. announces an expansion in its line of municipal construction equipment for 1958. The company's crawler tractors will cover the municipal front with more types and sizes—from the improved 28 net engine hp OC-4 to the work-speeding OC-18 of 161 net engine hp.

Oliver's 990 Scraper

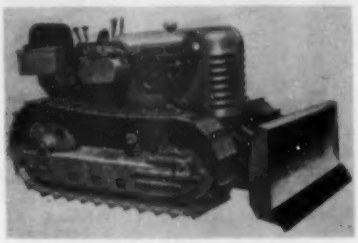
OC-126 Loader

The OC-4 will be available with a new trencher attachment. Other versatile mounted attachments, including a hydraulic side boom for pipeline work, will also be furnished.

In the 62 net engine hp range, Oliver's OC-12 will be available with a rear-mounted scarifier. The OC-126 loader will have a new angleblade for mounting on the loader arms, a combination that promises a speedy excavating and loading rig with

cleanup and dozing follow-through. It will also be available with lifting boom and fork attachments.

In the rubber-tired tractor field, Oliver will have a full line-up of models in its Super 55, 77, 88 and 99 series, which



OC-4 Dozer

mount a full line of attachments. New, will be a torque converter and Reverse-o-matic on its Super 77 loader.

A more detailed description of these and other Oliver models for '58 may be obtained directly from THE OLIVER CORP., INDUSTRIAL DIV., 19300 EUCLID AVE., CLEVELAND 17, OHIO, or you may use the Post Card on the insert following Page 54. Circle No. 964.

Budger Meter to Offer Controls for Automation

Purchase of the Counter & Control Corp., Milwaukee, Wis., is announced by James O. Wright, president of the Badger Meter Mfg. Co., of Milwaukee. The firm, manufacturers of controls for automation, will operate as a wholly-owned subsidiary of Badger, under the direction of Harold J. Geder, formerly president of Counter & Control Corp.

N.Y.C. Increases Fleet of Mack Fire Trucks

One of 33 new pumpers and aerial ladder units recently ordered by the City of New York.

Another large-scale order for fire apparatus, totalling 33 pumpers and aerial ladder units, has been received by Mack Trucks, Inc. from the New York City Fire Department. Total cost of the equipment, reports Bert N. Nelson, manager of the company's Fire Apparatus Division, will amount to about $725,000.

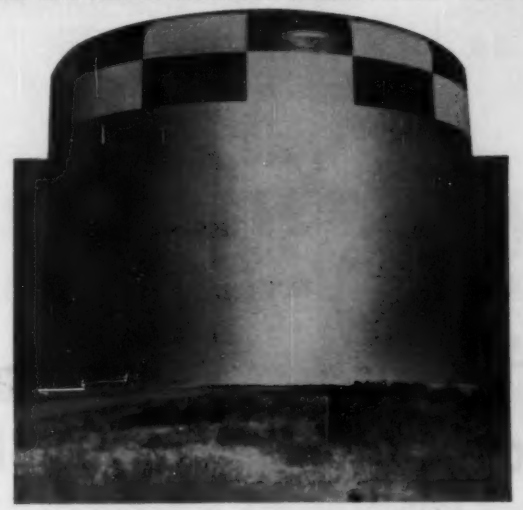
The 33 additional units will include twelve 1,000-gpm pumpers; eight 750-gpm pumpers; eleven 85-foot aerial ladder tractor-trailer units; and two 100-foot aerial ladder tractor-trailer units. All of the vehicles will feature Mack cab-forward canopy design with fire department air brakes, and will be powered by Mack Thermodyne gasoline engines. The pumpers will carry portable deluge guns, 375-gallon booster tanks and booster reels. The aerial units will feature hydraulically-operated steel ladders, equipped with two ladder pipes for use as water towers.

Detailed information on Mack fire apparatus may be obtained directly from MACK TRUCKS, INC., 1355 W. FRONT ST., PLAINFIELD, N. J., or you may use the Post Card on the insert following Page 54. Circle No. 962.

Specify "ROSS" Automatic Valves

FOLLOW THE LEAD OF THE ENGINEERS WHO SPECIFIED CONTROLS FOR THIS STANDPIPE FOR THE "SOUTH PITTSBURGH WATER CO." PITTSBURGH, PA.

WATER LEVEL IN THIS, "AMERICA'S LARGEST STANDPIPE," IS CONTROLLED BY A 20-INCH ROSS DOUBLE-ACTING ALTITUDE VALVE.



Pioneers in the manufacture of automatic hydraulic control valves, Ross has served the industry since 1879.

Valves manufactured include:

ALTITUDE—BACK PRESSURE—FLOAT
PRESSURE REDUCING—SURGE RELIEF—COMBINATION
with Hydraulic and Electric Pilot Controls

Ross Valve Manufacturing Co., Inc.
8 OAKWOOD AVE. TROY, N. Y.

for every city . . every town . .

MATTHEWS'

"Integral Date" BILL RECEIPTERS

Your municipal collection offices can improve efficiency, prevent errors and speed up receipting of bills for water, taxes, sewage disposal, gas, electricity and other community services with Matthews Bill Receipters. Integral band daters changed to the proper date in a second! Three standard models, all priced within the budget of even the smallest local government, to suit your bill forms.

ONE EASY MOTION to stamp "PAID" and date on cashier's coupon and customer's receipt, cut receipt from coupon and deposit coupon in locked compartment.

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OFFICES IN PRINCIPAL CITIES • WRITE, CALL OR TWX 424

What do YOU Want

in a Can Carrier!

Do you want . . . **Safety** for your men? . . . Modern, good looking machines? . . . **Easy pushing** (big wheels)? . . . **Quietness** (fat rubber tires)? . . . A place for shovel and broom? . . . Simple to load and unload? . . . **A Carrier that will last** for years?

TARCO "Street Sweepers' Friend" Carriers are "YES" answers . . . at prices you can afford to pay.

TARRANT Manufacturing Co.

23 Jumel St., Saratoga Springs, N. Y.

FERRO SIGNS

. . . are visible day or night. Made of permanent porcelain enameling, fused on finest steel. Fully embossed. On any street, road, or highway *FERRO is the sign of good government.*

FERRO ENAMELING COMPANY

Member: Porcelain Enamel Institute

1100 FIFTY-SEVENTH AVENUE
OAKLAND 21, CALIFORNIA

Purchasing

Hersey Wins Award

Ralph H. Landes, of Western Electric Co., center, presents awards to Earl MacKinnon, left, and William G. Giddings.

Earl MacKinnon and William G. Giddings, supervisors for the Hersey Mfg. Co., at its new Dedham (Mass.) plant, recently received third and first place trophies, respectively, in the national methods improvement competition sponsored by the Industrial Management Society. The awards were presented during the recent Industrial Engineering and Management Clinic at the Hotel Sherman, Chicago.

Increased Sales for Dual Parking Meters

Sales of Dual parking meters have increased steadily over the past six months and this trend is expected to continue through 1958, according to C. K. Madison, vice-president in charge of the Municipal Utilities Division, Rockwell Mfg. Co., Pittsburgh, Pa. Mr. Madison predicts a 1958 total volume "at least" 25% ahead of the estimated record total for 1957.

The steady rise in sales in the last half of 1957, reports Mr. Madison, is partly attributed to "the increased know-how, product research strength and wider distribution which we have brought to the Dual operation since acquiring it late in 1956." It is also due to the fact that an increasing number of cities are depending more and more heavily on parking meters, not only for traffic control, but also for revenue.

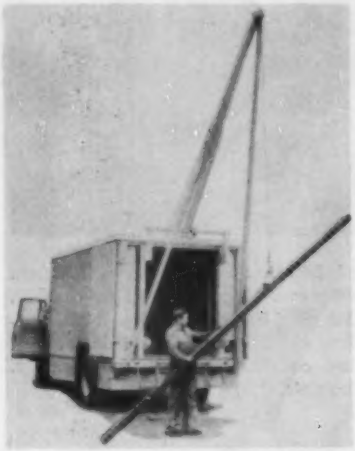
A Work Shop on Wheels

This work shop on wheels is particularly useful in bridge and other construction work as well as in general municipal maintenance. It features a winch equipped five-ton crane which can be completely disassembled and stored inside the truck when the vehicle is in transit. Too, it has a 125 cubic feet air compressor, 15 KV generator—300 ampere, 40-V welder.

The air compressor and the generator-welder are operated by a CEMCO split-

shaft power take-off. Compartments and sidewall bins provide ample storage for parts and tools.

The Mobile Work Shop is fully described in literature from CEMCO INDUSTRIES, INC., GALION, OHIO. Write directly, or you may use the Post Card on the insert following Page 54. Circle No. 967.



All-Plastic Cables

Ankoseal is probably the best known all-plastic street-lighting cable. The newest product in the Ankoseal line of cables is the Alpeth-type cable. This innovation is shielded with a low-resistance aluminum longitudinally applied, said to furnish improved lighting protection. Production of these cables is geared for immediate deliveries.

Details on Ankoseal Alpeth-type cables are available directly from the ANSONIA WIRE & CABLE CO., ASHTON, R. I., or you may use the Post Card on the insert following Page 54. Circle No. 947.

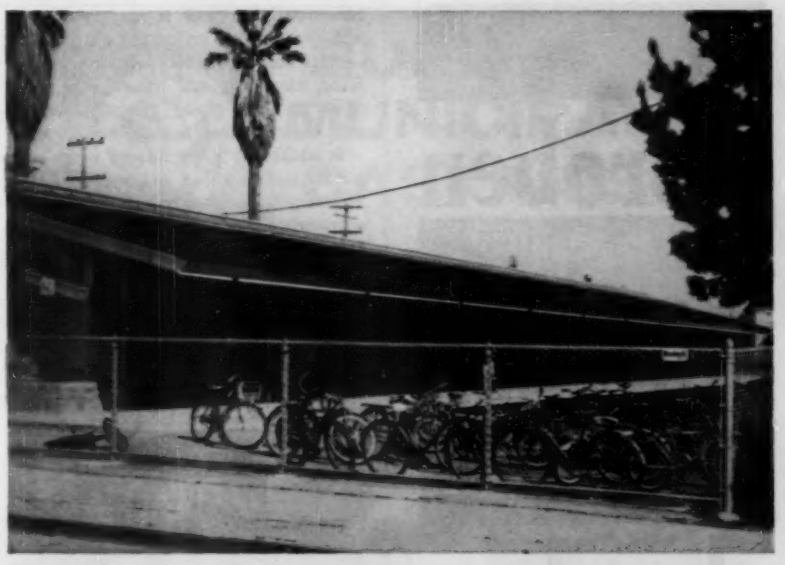
New Transistorized Pipe Locator

Celebrating its 25th anniversary in the electronics field, the GOLDAK CO., INC., 1544 W. GLENOAKS BLVD., GLENDALE 1, CALIF., announces a completely new, transistorized pipe locator. In keeping with Goldak's reputation for manufacturing the "world's finest locating equipment," the transistorized locator will give greater tracing distance, greater depth, and more accuracy, with maintenance costs to be figured in terms of pennies.

The new locator has ruggedness, dependability and stability not found heretofore in equipment of this type. It features transistors, printed circuit boards and packaged circuits for better locating, and small-size flashlight batteries for maintenance savings.

With transistors and other components encapsulated in five different "packages," temperature, humidity fluctuations, shock and vibrations present no problem.

Further information on the new pipe locator is available directly from the manufacturer, or you may use the Post Card on the insert following Page 54. Circle No. 970.



REALOCK FENCE

"built-in" two-way protection

School children are protected during the day . . . from strangers, animals, outside harm . . . when a Realock Fence encloses play and recreation areas. Schools and other municipal buildings are protected at night . . . from prowlers, vandals, thieves . . . by the same Realock Fence.

Hefty posts set in concrete and strong, top-grade wire fabric ensure long years of maximum two-way protection. Realock Fence is available in steel or aluminum and is virtually maintenance-free.

It is manufactured in a wide variety of types, in all standard sizes up to 12'. Erection Service available. Ask for a free estimate today.

THE COLORADO FUEL AND IRON CORPORATION—Denver and Oakland
WICKWIRE SPENCER STEEL DIVISION—Buffalo, New York

CFI REALOCK FENCE
THE COLORADO FUEL AND IRON CORPORATION
BRANCHES IN ALL KEY CITIES 5761

proved!
cloroben
most effective
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sanitation chemical
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cloroben
controls odor
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Specify and use CLOROBEN for up-sewer treatment to control odor, minimize corrosion, improve plant operation.

Specify and use CLOROBEN for septic tanks, cesspools, chemical toilets. **CLOROBEN!** Unquestionably the choice of professional sanitation engineers.

ON REQUEST: Technical Brochure describing **CLOROBEN** applications and performance data.

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115 Jacobus Avenue, South Kearny, N. J.
Affiliate of:
Standard Chlorine Chemical Co., Inc.
Standard Naphthalene Products Co., Inc.

Purchasing News

New Bituminous Distributor

Municipal street departments can now do an economical job of heating and applying all types of bituminous material with the efficient "Thriftline." This all-purpose bituminous distributor is easy to operate, with two controls performing all functions —distribution, suck-back, hand spraying, filling, circulating and transferring. The new "easy-flo" piping system, equipped with leakless valves, is only five feet long.

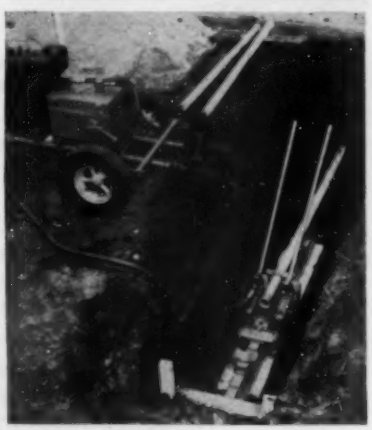
In addition to a rear housing which covers the pump, engine and all piping, the "Thriftline" features fireproof burner boxes, completely enclosed. Standard equipment includes a 36-hp, air-cooled engine; 375-gpm pump; 12-foot suck-back spray bar with positive cut-off; and hand patching hose and spray arm.

The "Thriftline" distributor is available in 1,000-, 1,250-, and 1,500-gallon sizes. It is fully described in *Catalog T-100* from MUNICIPAL SUPPLY CO., DEPT. T-22, 2508 S. MAIN ST., SOUTH BEND, IND. Write directly, or you may use the Post Card on the insert following Page 54. Circle No. 963.

Flashing Safety Light

To safeguard both pedestrians and motorists during street construction and repair work, use these dependable flasher safety lights. The battery-operated units

FAST INSTALLATION OF UNDERGROUND PIPE



Greenlee Hydraulic Pipe Pusher teamed with a portable power pump, as shown above, makes quick, easy work of installing pipe under streets, walks, tracks, floors, and lawns. Average pushing performance for this equipment is two feet per minute. There is no tearing up of concrete, floors, tracks, lawns. Eliminates extensive ditching, tunneling, backfilling. Cuts job time to a fraction. Two models available. Larger one for pipe over 4", drainage ducts, concrete sewer pipe. Get the complete story by writing Greenlee Tool Co., 2022 Columbia Avenue, Rockford, Illinois.

ORDER ONE
for EVERY Service Car!
SAVE MONEY, TIME, CALL-BACKS!
The Amazing AQUA VALVE BOX LOCATOR
$29.50 F.O.B. Cin. Ohio
NORTH
Your Name In Gold FREE!
SURE LOCATIONS EVERY TIME!
• NO WIRES, BATTERIES or SWITCHES— simple, powerful magnetic action, factory adjusted to YOUR geographical location assures unfailing results!
• NO NEEDLE SPINNING—exclusive electric braking action saves you time!
• NO STOOPING—easy top-view reading!
• RUGGED—compact, accurate, convenient!
• GUARANTEED—to function regardless of weather, surface or ground cover!
• NATION'S MOST WIDELY USED LOCATOR!
• 15-DAY FREE TRIAL — No money! No obligation! You be the judge!
ORDER NOW — Wire or call Kirby 1-4200 collect for fastest delivery!
AQUA SURVEY & INSTRUMENT CO.
2010 Leslie Ave. Cincinnati 12, Ohio

are visible for over two miles in one direction, and provide up to 90 days of continuous operation without servicing.

The new uni-directional light, Model HD-1-7, features a convex optical plastic lens of special fresnel design for maxi-

mum flash brilliance. An improved lens, used in combination with an overhead mounted neon flasher tube and an aluminized reflector, assures maximum visibility.

Detailed information on the Model HD-1-7 may be obtained from R. D. Fageol Co., Kent, Ohio. Write directly, or you may use the Post Card on the insert following Page 54. Circle No. 945.

End Suction Pumps Have Many Uses

Cities can use these new, end-suction type BC general purpose pumps for circu-

lating, coolant, cooling towers, condensate return, booster, hot water, swimming pools, filters, sprinklers and many other applications. They are available in close-coupled horizontal, flange-mounted vertical, and pedestal-mounted horizontal units. Sizes range from ¼ hp to 40 hp at 3,500 rpm; and from ¼ hp to 20 hp at 1,750 rpm.

BC general purpose pumps are fully described in *Bulletin 119-C*. For your copy, write Aurora Pump Division, The New York Air Brake Co., 66 Loucks St., Aurora, Ill., or you may use the Post Card on the insert following Page 54. Circle No. 952.

Tractor-Mounted Loader

Leading a new line of earth-moving and materials handling equipment recently introduced by the Henry Mfg. Co., P. O. Box 521, Topeka, Kans, is the L600 loader, a tractor-mounted unit designed for easy installation and fast, simple operation. The lightweight loader is said to provide increased operator visibility. It has a rated capacity of 1,500 pounds to full height, and a breakaway capacity of 3,000 pounds.

With the new Henry L600 loader, an operator can dig four inches below depth

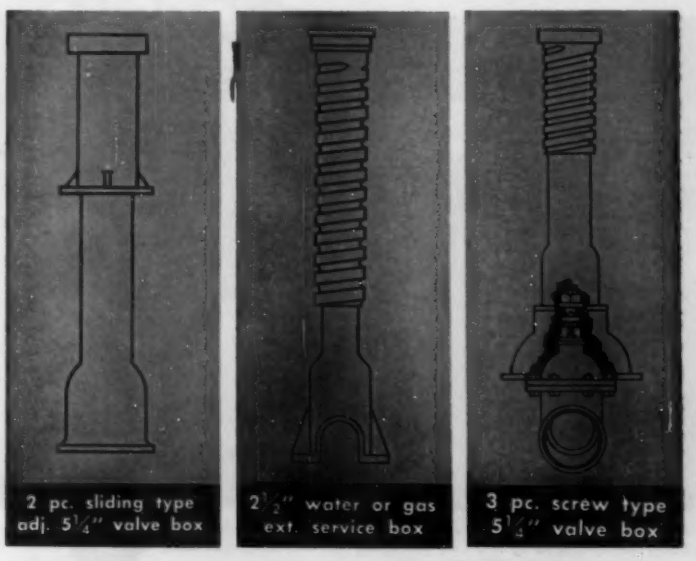
(*Continued on page* 222)

BUFFALO PIPE & FOUNDRY

BUFFALO MUNICIPAL CASTINGS

are available in every size and style!

No matter what size, shape or style municipal casting you may desire — you're practically sure to find a "Buffalo" casting to serve your needs. Or, where desired, castings may be made to your own specifications. Whether you need valve, service or roadway boxes, meter boxes, manhole rings and covers or other municipal castings, you'll find all "Buffalo" castings designed for service and dependability.

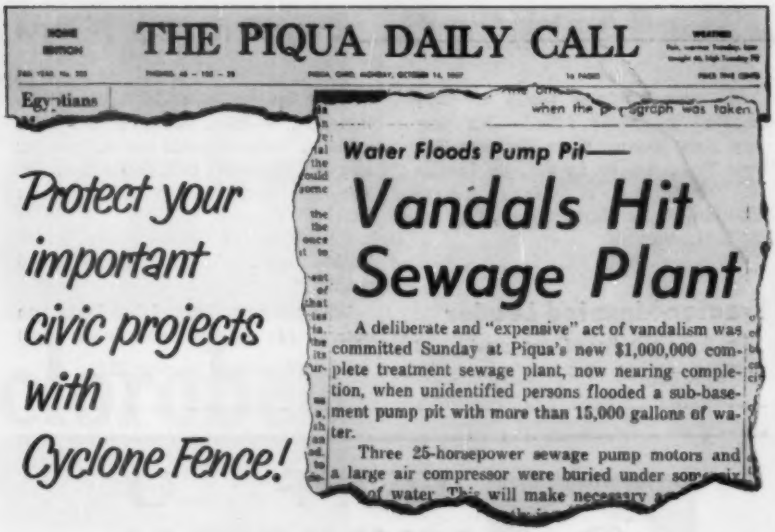


Prompt quotations given on all your standard or special gray iron or non-ferrous castings.

Write or wire Dept. J for Bulletin M11.

SINCE 1930
BUFFALO PIPE & FOUNDRY CORP.

BOX 55 – STATION B DE 6764 BUFFALO 7, N. Y.


THE PIQUA DAILY CALL

Egyptians

when the photograph was taken

Water Floods Pump Pit—

Vandals Hit Sewage Plant

A deliberate and "expensive" act of vandalism was committed Sunday at Piqua's new $1,000,000 complete treatment sewage plant, now nearing completion, when unidentified persons flooded a sub-basement pump pit with more than 15,000 gallons of water.

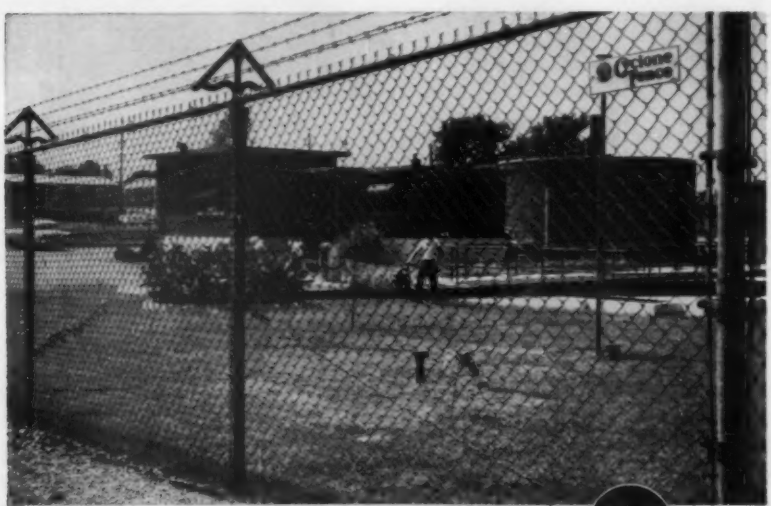
Three 25-horsepower sewage pump motors and a large air compressor were buried under some

Protect your important civic projects with Cyclone Fence!

WHEN VANDALS TAMPER with a city's sewage system or with its water supply, expensive physical damage results. Even more important—the health and safety of the citizenry are endangered. That's why many municipalities give their vital projects the extra protection of strong, sturdy Cyclone Fence.

Cyclone Fence is a quality product, built to give years of low-maintenance, trouble-free service. It is made entirely of brand-new top-quality materials. Posts and top rails are heavy and rigid. Gates won't drag. The chain-link fabric is woven from heavy steel wire and galvanized *after* weaving for greatest resistance to rust and corrosion.

For more information on Cyclone Fence and Gates, get in touch with the nearest Cyclone Sales Office. Our trained personnel will be glad to consult with you without obligation.



This municipal sewage works gets virtually trespasser-proof protection from its Cyclone Fence, topped by five very unfriendly strands of barbed wire.

USS

CYCLONE FENCE DEPARTMENT

AMERICAN STEEL & WIRE DIVISION • UNITED STATES STEEL CORPORATION

Waukegan, Illinois · Sales Offices Coast-to-Coast · United States Steel Export Company, New York

USS CYCLONE FENCE

Only United States Steel Corporation manufactures Cyclone Fence.

UNITED STATES STEEL

Purchasing

with a reach up to three feet ahead of the unit at 40° dump. The loader offers up to 20° of bucket rollback, a 58° bucket

dump, and a height of dump of 9 feet at 40° dump.

Additional details on the L600 may be obtained directly from the manufacturer, or you may use the Post Card on the insert following Page 54. Circle No. 940.

Sprays Shade Trees Quickly, Effectively

Designed primarily for shade tree spraying, the efficient 300 Rotomist may also be used for fly and mosquito control and for fall leaf collection. The all-purpose unit is said to move 60,000 cfm at a vel-

ocity of 95 mph. It is especially valuable in the fight against dreaded Dutch Elm disease now taking place in many eastern and midwestern states.

The trailer-mounted Rotomist rotates 360° on its turntable. The air tunnel elevates through a 110° arc from the vertical. The unit is powered by a 120-hp engine and has a spray tank capacity of 300 gallons, from which material can be pumped to the three nozzles in the air stream at pressures up to 400 pounds by the "Royalette 7" high-pressure pump. The trailer model is nine feet high, eight feet wide and 11½ feet long.

Complete information on the 300 Roto-

mist may be obtained from JOHN BEAN DIVISION, FOOD MACHINERY AND CHEMICAL CORP., LANSING 4, MICH. Write directly, or you may use the Post Card on the insert following Page 54. Circle No. 965.

Provides First Aid for Sinking Pavements

Cities can use any of three "mud-jack" units to prevent concrete slab failures, and to raise sunken pavements to their original grade. The three "Mud-Jacks" are: (1) the one-man operated Model 10 used for concrete curb, gutter, sidewalk, street, alley, driveway and many other small areas needing slab treatment; (2) the Model 50 for street and highway operations; (3) the Model 51 used in stabilizing railroad track beds, cross-overs and switches.

Application of the "Mud-Jacking" method is fully explained in a new, two-color catalog with instructive texts, 45 illustrations and diagrams. Particular emphasis is placed on slab preparation and consistency of the slurry used. Copies of the catalog are available from KOEHRING DIVISION, MILWAUKEE 16, WIS. Write directly, or you may use the Post Card on the insert following Page 54. Circle No. 942.

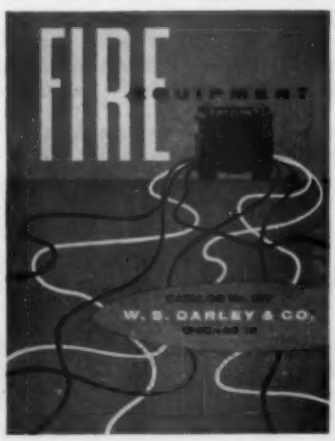
Talk Farther on Radio

This high power station radio transmitter gives dispatchers more ability to reach police and emergency vehicles traveling in outlying areas. It delivers up to 250 watts, and operates in the 450-460 mc band.

The new transmitter increases power output up to 12 db and enables dispatchers to talk up to 50% farther. In terms of square miles, it doubles the coverage. Moreover, it helps to assure that a message will be

(*Continued on page* 224)

NEW CATALOG!



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SPECIFY YOUR TITLE ON YOUR REQUEST

W. S. DARLEY & CO.
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PARKMASTER

BEST by TEST IN THOUSANDS OF PARKS

YOU'LL LIKE:
- Low Installation Cost
- Easy Removal of Body for Storage
- Padlocks to Post
- Quick Ash Removal from Either End

PATRONS LIKE:
- Large 15" x 22" Actual Cooking Surface
- Positive Draft Control
- Wide Utensil Shelves
- Swivel Mounted Body

Send for complete specifications and prices

HANCOCK IRON WORKS
50 W. Pike Street, Pontiac, Michigan

HOW CITY ENGINEERS
CUT MAINTENANCE COSTS
ON PIPE, PIPE JOINTS, FITTINGS, COUPLINGS, TANKS, TIE RODS and CONDUIT

Specify
TAPECOAT®

The Quality Coal Tar Coating in Handy Tape Form

For your preventive maintenance program, you need the best possible protection at the lowest possible cost. Since 1941, TAPECOAT has proved its superiority in combating corrosion. This quality coal tar coating in handy tape form is self-bonding—simple to apply with the use of a torch. No trained help required. It resists moisture, acids, alkalis, soil stress, electrolysis, chemical fumes, salt water, and other severe abrasive and corrosive conditions. Through its quality and continuing protection, it cuts maintenance and replacement costs.

Low-cost TAPECOAT comes in rolls of 2", 3", 4", 6", 18" and 24" widths.

Write for brochure and prices

The TAPECOAT Company
Originators of Coal Tar Coating in Tape Form
1541 Lyons Street
Evanston, Illinois

CUT OPERATING COST SIMPLIFY LIFT SYSTEM

THE BLACKBURN-SMITH WAY . . .

Blackburn-Smith Pneumatic Sewage Ejectors give you better sewage lifting for less money. Simplest to operate. No complex piping, screens, impellers, shredders, pumps which need constant cleaning and costly maintenance. It will pay you to know the many exclusive features of design and operation of these time-tested units. Backed by 60 years' experience.

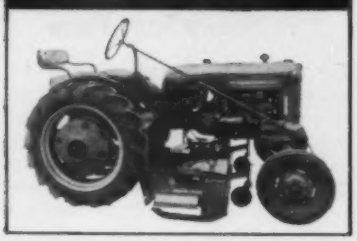
Duplex Ejector Twin Units for discharge rates of 30 to 500 g.p.m., heads up to 150 ft. Also made in single units.

BLACKBURN-SMITH MFG. CO., INC.
GARDEN ST., HOBOKEN, N. J.
OLdfield 9-4425
N. Y. Tel. BArclay 7-0600

Write for Catalog S-55

Shows application, advantages, dimensions and layouts of B-S Pneumatic Sewage Ejectors, single and duplex units. Describes exclusive features of float, electric and pneumatic controls. Tells how to select proper size ejector.

Fastest, Cheapest Way to Mow Big Lawns



This 5 Ft. Lawn Special Wood's Rotary on a Farmall Cub makes an ideal outfit for mowing tree-thick lawns as well as big unbroken areas. So maneuverable it can even do most trimming jobs. Excellent for mulching leaves and clipping weeds. Rugged 42" models shred brush also.

25 MODELS AVAILABLE—42" to 114" Cut

42" under-mounted for Farmall Cub, Lo-Boy, Super A, 100, 130 and A-C G. 42" rear-mounted for Fast-Hitch Cub and Lo-Boy. 60", 61" and 80" rear-mounted for larger Fast-Hitch Farmalls (using 3 pt. adapter), all standard 3-point hitch tractors (Ford, Ferguson, Oliver Super 55, etc.), and 60" for A-C D14, D-17 and WD-45. 60", 61", 80" and 114" draw-bar pull-types for any 2, 2-3 and 3-4 plow tractors and Jeeps. 80" offset model (2-3 plow) for working under low trees. All have free-swinging blades.

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Year 'Round Holiday Pleasure

Overlooking the blue Pacific. Gracious, informal living in a resort atmosphere — luxurious accommodations, finest facilities.

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- Ample wardrobe closets
- Complete Hotel Service

Elevator ● Switchboard, Rooms, Studio Rooms, and Suites with fully-equipped kitchens. Television Available.

Tariff includes Continental Breakfast served in Rooms.

Write for Brochure and Rates
YVONNE SANDELL, Manager

THE INN at LAGUNA, California

Purchasing

received by a mobile radio even when the vehicle is unfavorably located.

For full facts on the new transmitter,

write GENERAL ELECTRIC CO., COMMUNICATION PRODUCTS DEPT., ELECTRONICS PARK, SYRACUSE, N. Y., or you may use the Post Card located on the insert following Page 54. Circle No. 941.

Digs Out Corners

Using the new Davis backhoe, an operator can effectively dig out a corner, then trench from the corner in a direction parallel with the tractor and finally in a perpendicular direction—all without moving the tractor. All the operator does to perform this entire operation is side mount the backhoe and move the tractor perpendicular to the trench or footing.

The new backhoe has a seat that moves with the boom, giving the operator full visibility at all times. A special hydraulic rotary boom swing cylinder provides a smooth, continuous 200 degrees of cushioned operating arc without using cables

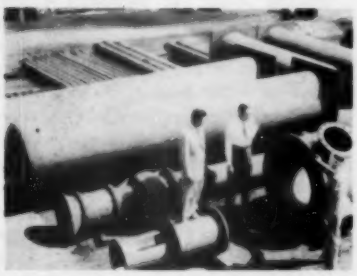
*IN TEXAS

Purchasing News

and without ever changing a pin. Three interchangeable mounting points on the frame make it possible to move the entire mast and boom assembly from center to side for flush digging alongside buildings and fences.

Detailed information on the new Davis backhoe may be obtained from MASSEY-FERGUSON, INC., INDUSTRIAL DIVISION, DEPT. A, 1009 SOUTH WEST ST., WICHITA, KANS. Write directly, or you may use the Post Card on the insert following Page 54. Circle No. 946.

Huge Pumps for a Big Job



Inspecting the pumps before shipment are, left to right, John Mapel, sales manager; Perry Brown, vice-president in charge of production; and A. H. Miller, vice-president and general manager.

These huge barrel pumps, made by the JOHNSTON PUMP CO., PASADENA, CALIF., a Division of The Youngstown Sheet and Tube Co., are said to be among the largest ever built. The two larger pumps are designed to handle 10,500 gpm at 195 feet; the smaller units will lift the same amount from 98 feet.

For detailed information on Johnston pumps, write directly to the manufacturer, or you may use the Post Card on the insert following Page 54. Circle No. 939.

It Calls to Safety

What was originally developed to project sound over winds and rains and successfully call water fowl within gun range, can be used to call humans from danger. The device is the Pied Piper transistorized amplifier with clear sound range of ¾ mile. Its lantern type batteries have a life of up to four hours of continuous normal use.

Equipped with a handle, this portable transistorized amplifier weighs 20 pounds.

Full details may be obtained from the PIED PIPER CO., PLYMOUTH, WIS. Write directly, or you may use the Post Card on the insert following Page 54. Circle No. 949.

L-20 White ASPHALT PLANT

PAYS FOR ITSELF IN 38 DAYS!*

* $13,900 F.O.B. Elkhart is price of portable model illustrated. Stationary model, $13,400 F.O.B. Complete, ready to operate. Prices subject to change without notice.

Make your own hot mix asphalt with this new WHITE plant and save up to $2.30 a ton. At its capacity of 160 tons an 8-hour day, that's a savings of $368.00 a day. Thirty-eight of those days pays for the L-20!

Produce any type mix you can get from a $100,000 plant: hot, RC, MC, SC and emulsified for top course, base course, one course, or patch. Two men operate. Capacity is rated at a hot 325 degrees.

The L-20 will supply black-top for suburban streets, driveways, parking lots, school yards, or state highway maintenance.

See your nearest distributor or write direct for full information.

White Manufacturing Company, Elkhart 1, Indiana

For Simplicity of Installation, Operation and Maintenance, SPECIFY . . .

Sparling 906

One meter... Dual Application

CAN BE MOUNTED AS A MANSOLE METER OR WELDED SADDLE

The rugged, dependable Sparling 906 represents a new concept for meter installations. The 906 meterhead assembly is mounted directly on a standard AWWA flanged "T" or flanged manhole outlet for immediate operation . . . as a Welded Saddle Meter, it's furnished with a fabricated saddle permitting the meter to be mounted easily on an existing steel pipe. In saddle application, weight is reduced considerably and installation is simple. Sizes 16 to 72 inches.

OTHER OFFICES:

Atlanta Chicago Cincinnati
Dallas, Texas Kansas City, Mo.
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☐ Yes! We are interested in increasing our metering efficiency. Send us more information . . . no obligation, of course.
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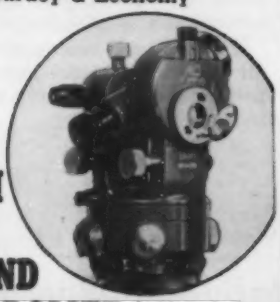
*IN TEXAS

...AND THE WORLD OVER

KERN SURVEYING INSTRUMENTS

*The Bridge Division of the State of Texas Highway Dept. uses Kern Instruments

WORLD FAMOUS FOR
Working Speed
Operational Simplicity
Accuracy & Economy



DKMI TEN SECOND THEODOLITE (with optical micrometer)

- Exceptional portability and precision.
- Readings automatically ... AT A GLANCE.
- Direct reading to 10". Estimation to 1". Average working accuracy —3-4 secs.
- Can be used with electric lighting unit for night work.

KERN CENTERING TRIPOD

Unique—a Kern first! Centers instruments in seconds with remarkable accuracy. Assures exceptional stability with ball-and-socket head, supporting instrument coupling.

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The FINEST in SURVEYING EQUIPMENT

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Purchasing News

Crawler-Mounted Ditcher Has Vertical Boom

Newest addition to the Barber-Greene line of ditchers is a vertical boom, crawler-mounted unit designed for a variety of municipal applications. The new Model 784 embodies the basic chassis of the company's Model 774 wheel-type ditcher. If desired, the vertical boom may be removed and the 5 foot-6 inch digging wheel of the Model 774 may be substituted.

With the vertical boom attached, the operator can dig up to seven feet deep, with bucket widths of 19, 21 and 24 inches. This variation in digging widths is achieved with a single bucket line by varying the position or adding teeth to individual buckets on the digging line.

Other features of the Model 784 include the company's "Hydra-Crowd" hydraulic crowding speed transmission, hydraulic brakes, and a hydraulically-controlled boom hoist.

Additional details on the new ditcher may be obtained directly from the BARBER-GREENE CO., 400 N. HIGHLAND AVE., AURORA ILL., or you may use the Post Card on the insert following Page 54. Circle No. 958.

New Main-Line Meter

Sparling Meter Co. introduces a new main-line meter, available in four- to 24-inch sizes with working pressures either Standard 150 or 250 psi. It incorporates a powerful radial magnet, molded as an integral part of the propeller hub. A companion magnet on the drive shaft of the meter permits motion to be transmitted to a sealed transmission from the propeller to the register. This sealed mechanism reduces friction and maintenance. The new direct mounted indicator-totalizer is a

STRATO-TOWER

makes HIGH, TOUGH JOBS easy!

Overhead jobs . . . painting . . . tree-trimming, light-servicing . . . hundreds of others . . . now reached by workmen in seconds, with STRATO-TOWER!

- Four sizes: 35', 45', 65', 95'.
- A type of mount for every need.
- 280° Rotation.
- Single control . . . easy to operate.

STRATO-TOWER DIVISION
MOORE'S TIME-SAVING EQUIPMENT, INC.
ELKHART, IND.

Write for folder and prices!

The Crest of Good Living in New York City

HOTEL New Yorker
34th Street at 8th Avenue

Manhattan's largest hotel with 2500 rooms, all with bath and free radio—television in many. Meditation Chapel open to all faiths. Midtown location. Direct entrance to Pennsylvania Station. Three air-conditioned restaurants

LAMP POST CORNER . . . COFFEE HOUSE
GOLDEN THREAD CAFE

Singles from $7 | Doubles from $11 | Suites from $23

JOSEPH MASSAGLIA, JR., President
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Other MASSAGLIA HOTELS
- SANTA MONICA, CALIF. Hotel Miramar
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- HARTFORD, CONN. Hotel Bond
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World-famed hotels
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standard feature of the Sparling Masterflow meter.

More detailed information on the mainline meter, as well as on the new tacho-

meter type indicator-totalizer, may be obtained from SPARLING METER CO., 225 N. TEMPLE CITY BLVD., EL MONTE, CALIF. Write directly, or you may use the Post Card on the insert following Page 54. Circle No. 955.

New Line of Wheel and Crawler Tractors

J. I. Case Co. recently unveiled a complete line of tractors, including eight wheel-type and four crawler units, making up a 12-tractor line. Highlighting the new line is Case's Case-O-Matic Drive. This new unit, similar to those available in a modern automobile, enables the operator to select the proper gear, and then complete his job without shifting, stalling or using a clutch. It links the engine with the transmission hydraulically to produce "power automation."

Additional details on the new tractor line may be obtained from J. I. CASE CO., RACINE, WIS. Write directly, or you may use the Post Card on the insert following Page 54. Circle No. 957.

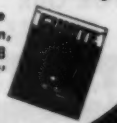
Taking the wheel of the new Case-O-Matic 800 tractor is Marc B. Rojtman, executive vice-president of J. I. Case.

GUNITE
The Modern Way...

for Repairing, Constructing, Lining:

- Reservoirs
- Dams
- Filter Plants
- Tanks
- Sewage Disposal Plants
- Stadiums
- Bridges
- Sea Walls
- Swimming Pools

Write for more information, including 48 page "Gunite" booklet.



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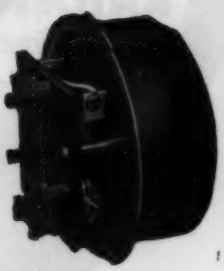
193 Emmet Street NEWARK 5, N. J.

TIME-O-MATIC
FLASHERS
Jack Mounted

Time-O-Matic Jack Mounted Flasher in Standard Meter Case

Single or two circuits, every model with built-in eliminators. Available with standard meter case (above) or separately with Jack mounting panel (below).

Time-O-Matic Jack Mounted Flasher Only



Time-O-Matic Jack Panel in Meter Case

SPECIFY DEPENDABLE TIME-O-MATIC CONTROLS

•

TIME-O-MATIC, INC.
P. O. Box 850
1108 Bahls Street
Danville, Illinois, U. S. A.

3 MODELS **FLAMEGAS** PORTABLE
asphalt & tar kettle burners

FLAMEGAS SERVES AMERICA

OPERATES ON LIQUID OR VAPOR PROPANE (LP) GAS

AVAILABLE WITH 100% SAFETY CONTROL AND AUTOMATIC TEMPERATURE CONTROL

ADAPTABLE TO MOST ALL OIL BURNING EQUIPMENT

BURNERS GUARANTEED

- Speeds up heating of tar, asphalt and pitch.
- Burner operates on 6 or 12 volts, electrical system or stand-by battery.
- Easily mounted and transported. No downtime, always operates.
- 2000° Flame temperature—no soot, no carbon, no flues to clean.

ATTACHMENTS AVAILABLE FOR USE IN—

Spray Bar Heating • Pump Preheating • Sand Drying • Spot Repair Preheating and Drying • Weed Burning • Lead Melting • Etc.

Write For Literature.

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WRITE FOR NEW FOLDER! Let KATOLIGHT Cut Time! Cut Costs!

Katolight Portable POWER PLANTS

With instant, dependable electrical power on the job work speeds up . . . costs go down. Katolight Portable Plants give your crews "plug-in" electricity anywhere, whenever they want it . . . power to operate all types of electical tools or for steady, bright flood lighting. Sizes and models for every portable, standby or continuous use from 350 watts to 160 KW. Up to 500 KVA on request.

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FOR STREET STENCILS AND SUPPLIES

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SARGENT-SOWELL, INC.
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About People

Directors of the **Hersey Mfg. Co.**, Dedham, Mass., have elected Walter A. Hersey, president, to the position of chairman of the board. He is succeeded as president and chief executive officer by Winthrop P. Hersey, formerly executive vice-president.

Walter A. Hersey **Winthrop P. Hersey**

W. Spence Flinn has joined the **Standard Steel Corp.**, of Los Angeles and Decatur, Ill., as southeastern district representative.

C. A. McTaggart, northwestern division manager for **Armco Drainage & Metal Products, Inc.**, Middletown, Ohio, has been elected a vice-president of the company. Mr. McTaggart has been associated with Armco since 1926.

William B. Elmer, manager of the Street Lighting Department, **Wheeler Reflector Co.**, Division of Franklin Research Corp., Boston, Mass., announces the appointment of Edmond E. Quintiliani as sales manager. Mr. Quintiliani has been associated with Wheeler for the past 20 years, last serving as Mr. Elmer's assistant.

E. E. Quintiliani

J. B. O'Conner, president of **Dresser Industries, Inc.**, Dallas, Tex., announces six executive promotions. Heading the list, R. E. Reimer was elevated to executive vice-president. He will continue

to serve as Dresser's treasurer. John Lawrence was also named executive vice-president. Thomas L. Moody has been appointed vice-president in charge of industrial relations; J. Douglas Mayson, secretary; and Cecil C. Hill and Paul E. Brodrick, assistant treasurers.

Charles Hodgdon will be in charge of the new Summit (N. J.) office of the **DeZurik Sales Co.,** a sales and service organization for DeZurik Corp., Sartell, Minn.

D. J. Redmond, director of sales for **Hercules Galion Products, Inc.,** Galion, Ohio, informs us of the recent appointment of Harold E. Boncutter as advertising manager. Mr. Boncutter is a former advertising manager of the Marion Power Shovel Co.

Succeeding the recently resigned Alden P. Lunt as president of **The Ansonia Wire & Cable Co.,** Ashton, R. I., is John S. Chafee, according to Emmet G. Gardner, chairman of the company's board of directors. Mr. Chafee has long executive experience with Brown & Sharpe Mfg. Co., Saco-Lowell Shops, Metals & Controls Corp., and B-I-F Industries, Inc.

J. S. Chafee

As new manager of engineering for the Communication Products Dept., **General Electric Co.,** Syracuse, N. Y., Richard P. Gifford will coordinate the company's engineering activities in the fields of mobile radio communications, microwave relay, power line carrier current and terminal equipment.

Bertram F. Given, president of **Waste King Corp.,** Los Angeles, Calif., announces the promotion of Warren E. Griffo to manager of the company's Incinerator Division. Mr. Griffo was formerly plant superintendent at Waste King's Cleveland Division.

George Steven has been appointed assistant general manager of the Compressor and Engine Division, **Worthington Corp.,** Buffalo, N. Y. Harold C. Whiting takes over as manager of engineering at the Buffalo division. Main offices of the Worthington Corp., are located in Harrison, N. J.

Joseph S. Ward, P. E., Consulting Soil and Foundation Engineer, announces the removal of his offices and soil testing laboratory to 91 Roseland Ave., Caldwell, N. J.

From Charles V. Schaefer, Jr., president of **Aeroil Products Co., Inc.,** South Hackensack, N. J., we learn of the appointment of Alexander Quayle as vice-president in charge of engineering and manufacturing.

W. H. Hipsher, executive vice-president of **Mueller Co.,** Decatur, Ill., announces the appointment of Dan R. Gannon as general sales manager. Mr. Gannon has been with Mueller since 1929. Another announcement concerns the election of Mr. Hipsher to the board of directors of the National Association of Manufacturers.

D. R. Gannon

Harold W. Stillman, Jr., has joined the staff of the **American Concrete Pipe Association,** Chicago, Ill. He will assist Howard F. Peckworth, managing director.

Eagle Signal Corp., Moline, Ill., announces the appointment of Ray W. Bergholz as municipal sales representative for the entire State of Wisconsin. Mr. Bergholz succeeds the late Harry Q. Beven.

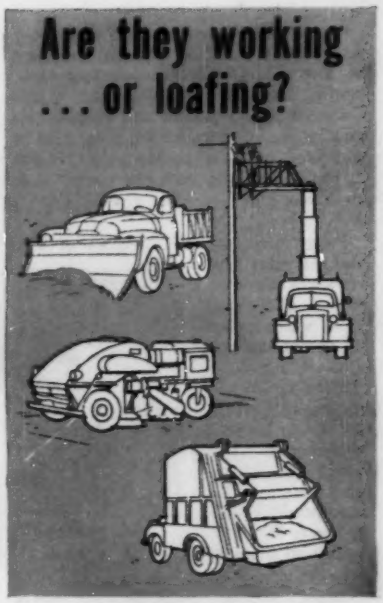
New president of the **Neptune Meter Co.,** New York City, is William H. Cochrane, according to John H. Ballantine, chairman of the company's board of directors. Mr. Cochrane succeeds the recently resigned Dante E. Broggi.

When R. A. Ferreira retires as a director and general sales manager of the **Robinson Clay Product Co.,** Akron, Ohio, he will be succeeded as general sales manager by A. E. Williams, former sales manager of the company's Vitrified Division. Robinson Clay Product recently realigned its entire sales department.

A. E. Williams

Three regional managers have been appointed by **Sherman Products, Inc.,** Royal Oak, Mich. They are George E. Harpham, who will be in charge of the eastern region, John Bergsma, central region, and James Fisk, who will manage the company's western region.

As Simazin industrial sales specialist for **Geigy Agricultural Chemicals,** Division of Geigy Chemical Corp., Ardsley, N. Y., Leo Miles will devote his efforts to sales development and technical services. He will handle the new pre-emergence, long residual herbicide, Simazin 50W.



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Homer L. Marrs has been appointed vice-president and operations manager for **Motorola Communications and Electronics, Inc.**, Chicago, Ill. Mr. Marrs is former vice-president and midwestern area sales manager for the firm. He is succeeded in these positions by Harold A. Jones, formerly staff director of sales for Motorola.

From the board of directors of **The National Clay Pipe Manufacturers, Inc.**, Cleveland, Ohio, we learn of the recent election of G. A. Robinson as president. Mr. Robinson succeeds D. M. Strickland, who retired this year. Mr. Strickland was elected a vice-president and will serve as a consultant to the board.

G. A. Robinson

Three special field representatives have been appointed by the **Clark Equipment Co.**, Construction Machinery Division, Benton Harbor, Mich. John A. Allsup will service the Plain States area; John A. Halleran, the northwestern states; and Orland K. Noel will handle the southeastern states.

J. Forrest Gee has been appointed assistant purchasing agent of the City of Atlanta, Ga. He succeeds R. C. Witcher, who retired recently after nearly 25 years of service.

Scheduled to assist Karl A. Roesch, vice-president of **The White Motor Co.** and general manager of its Autocar Division, Exton, Pa., is Frank Potts, former manager of the Montreal branch of The White Motor Co. of Canada Ltd.

The newly-created position of director of field sales for **Crouse-Hinds Co.**, Syracuse, N. Y., will be filled by Arthur F. Uhrlandt, according to John R. Tuttle, president and chairman of the board of directors. Mr. Uhrlandt will direct and coordinate all activities of the company's 11 field sales divisions.

Guy J. Coffey, president of the **Chicago Pneumatic Tool Co.**, New York City, has been elected president of the Diesel Engine Manufacturers Association.

W. E. Difford, managing director of the **Douglas Fir Plywood Association**, Tacoma 2, Wash., announces the appointment of Stanley A. Taylor as field promotion director.

Andrew W. Mulrain, former New York City sanitation commissioner, has been appointed a consultant to the **L. A. Young Spring & Wire Corp.** Mr. Mulrain will work with the company's Daybrook Hydraulic Division, Bowling Green, Ohio, in the field of sanitation equipment.

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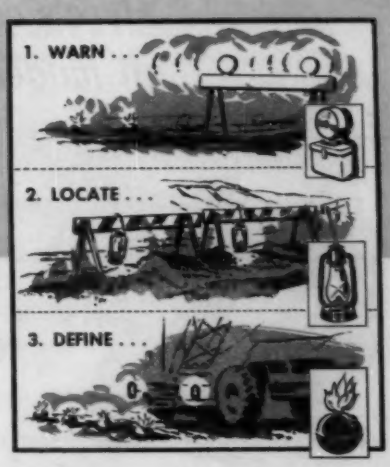

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Plastic markers after two and one-half years of busy Chattanooga traffic.

THE PLASTIC MARKERS shown in the accompanying photograph have been down 2½ years, on one of the busiest intersections in Chattanooga, Tenn. We have been using this marking for arrows as well as for crosswalks and lane lines. A 4-inch x 6-inch marker is used for the lane lines and a 6-inch x 6-inch marker is employed for the crosswalks.

These plastic markers are manufactured by the Robbins Tire & Rubber Co. in Tuscumbia, Ala. We have had a high degree of success with these markings and contemplate using them exclusively throughout our downtown area.

MARBLE J. HENSLEY, *Director*
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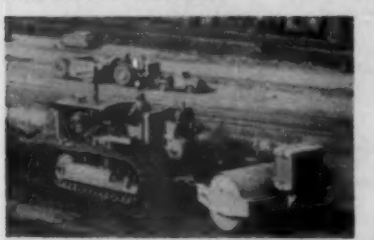
Chattanooga, Tenn.

Improves Street Construction and Maintenance



Municipal street departments should appreciate the efficiency of this tow-type vibratory roller for grade, base and surface consolidation. Called the Bros Vibra-Pactor, it has a static weight of 4½ tons and a controlled variable vibratory force equal to a range from 7½ to 10½ tons. Vibratory frequency ranges from 1100 to approximately 1300 vibrations per minute.

A special feature of the Vibra-Pactor is it's quarter-inch amplitude—the distance the drum is raised from the ground each revolution. This impact force combined with the drum weight helps achieve densities in excess of standard AASHO requirements in heavy cohesive subgrade and embankment materials.

Drum diameter of the Vibra-Pactor is 48 inches; rolling width is 66 inches. The machine is powered by a 40-hp engine.

Additional details on the new machine may be obtained from BROS INCORPORATED, ROAD MACHINERY DIVISION, 1057 TENTH AVE. S. E., MINNEAPOLIS 14, MINN. Write directly, or you may use the Post Card on the insert following Page 54. Circle No. 968.

New "Moto-Bug" Carries More

The ability to carry 3,000 pounds in an 18-cubic-foot hopper or when used as a platform carrier, is one of the many features offered by the Kwik-Mix "Moto-Bug." As a forklift, at 15-inch load center, the new model will raise 1,500 pounds to seven feet. The operator can tilt the forklift mast 10° back—2° forward.

Carrying a full load, the "Moto-Bug" can climb a 25% grade. As a forklift, it turns in an 84-inch radius; equipped as

a hopper or platform carrier, it turns in an 82-inch radius.

A direct drive to the power flow transmission eliminates shifting, reduces vibration and permits a 12 mph forward or reverse speed. The engine on the new model is side-mounted for greater operator comfort.

More detailed information on the Model R-18 Moto-Bug may be obtained from the KWIK-MIX CO., PORT WASHINGTON, WIS. Write directly, or you may use the Post Card on the insert following Page 54. Circle No. 954.

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CROSS SECTION of edge showing armor-like case and its shock-absorbing core.

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How to save time pouring concrete under a low ceiling

Pouring a concrete floor, 80 by 180 feet, may be just an ordinary job—but *not* when it must be done with a ceiling only 10 feet above you. Yet that was the problem they faced in Nashville, Tennessee, recently—and licked! First floor and basement columns of a large building had been poured and in use for several years; now a 6-inch basement floor had to be poured and curtain walls built.

Other machinery too big or too slow

Before starting the job, engineers carefully considered the equipment on hand. Usual mixers and other machines measured too big for basement use. Wheelbarrows or "Georgia buggies" were sure to be too slow and costly. But there *was* one piece of equipment that *might* do the trick. They called a mobile Michigan Tractor Shovel in from loading work, and tried it out.

Michigan proves "extremely maneuverable" between columns

In its test, the Michigan Model 175A received a full bucket load of ready-mix from a transient mixer. With bucket "cradled" in normal low shock-resistant carry position, down the ramp it went into the building's basement. Less than 8 feet high, the Michigan easily cleared the first-floor beams overhead. Load was poured out quickly, carefully—and back out of the basement the Michigan went for another 2¼ yards (struck measure). Power-steered and power-shifted, the Michigan proved extremely maneuverable among the many supporting columns. So, from then on, it was Michigan all the way.

Rough-spreads concrete, too

It wasn't long before the job foreman discovered Michigan could do a good job of rough-spreading the ready-mix, too. Simply by lowering the bucket, holding it under pressure and dragging backwards, the Michigan left the surface ready for the finishing crew. Finger-tip bucket control and unusual maneuverability made this time consuming job a cinch, dispensed with many of the laborers ordinarily needed.

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